

CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report /
Environmental Impact Statement

Mitigation Monitoring and Reporting Program

Merced to Fresno Section

May 2012



CALIFORNIA
High-Speed Rail Authority



U.S. Department of Transportation
Federal Railroad Administration



The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor and report on mitigation measures that it has adopted as part of the environmental review process. CEQA (Public Resources Code Section 21081.6 (a) (1)) requires that a Mitigation Monitoring and Reporting Program (MMRP) be adopted at the time that the agency determines to carry out a project for which an Environmental Impact Report (EIR) has been prepared to ensure that mitigation measures identified in the environmental document are fully implemented during project implementation, including the design, pre-construction construction, and post-construction phases.

Based on coordination with the resource agencies, local agencies, and stakeholders, various design features have been proposed as part of the project to minimize impacts. However, adverse effects may still occur. Mitigation measures that would reduce or eliminate potentially adverse significant environmental impacts associated with the Hybrid Alternative for the Merced to Fresno Section High-Speed Train (HST) Project have been identified throughout the Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

The MMRP for the Merced to Fresno Section of the California HST Project is presented as a table that includes the mitigation measures identified in the Final EIR/EIS and is organized by environmental issue, following the topical areas addressed in the EIR/EIS. The California High-Speed Rail Authority (Authority) may refine the means by which it will implement a mitigation measure, as long as the alternative means ensure compliance during project implementation. The MMRP describes implementation and monitoring procedural guidance, responsibilities, and timing for each mitigation measure identified in the EIR/EIS, including:

Significant Impact: Provides a brief description of the impact expected to occur from the proposed project as identified in the Final EIR/EIS.

Mitigation Measure: Provides the mitigation measure and monitoring requirements as identified the Final EIR/EIS.

Implementing Party/Monitoring /Reporting Party: Identifies the entity that will be responsible for directly implementing the mitigation measures, monitoring, and reporting. Implementation can be the responsibility of the Authority or its Contractor. Monitoring will generally be the responsibility of the Contractor, with oversight provided by the Authority during construction. Long-term mitigation monitoring responsibilities will be transitioned from the Contractor to the Authority upon final contract acceptance. The following roles are utilized in the MMRP:

- **Mitigation Manager:** Contractor's representative responsible for overseeing project mitigation to verify that mitigation is carried out as specified in this MMRP. Reports the status of each mitigation measure to Authority in accordance with this MMRP.
- **Project Biological Monitor:** The Project Biological Monitor will be approved by and report directly to the Project Biologist. The Project Biological Monitor will be onsite during all ground-disturbing activities that have the potential to affect biological resources and will be the principal agent(s) in the direct implementation of the MMRP and compliance assurance.
- **Project Biologist:** The Project Biologist will represent the construction management team, report directly to the construction management team, and will be responsible for reporting and overseeing the biological resources mitigation measures
- **Contractor's Biologist:** The Contractor's Biologist is responsible for implementing mitigation measures in compliance with the terms and conditions outlined in the MMRP and U.S. Fish and Wildlife (USFWS), U.S. Army Corps of Engineers (USACE), State Water Resource Control Board (SWRCB), and California Department of Fish and Game (CDFG) permits.

- **Qualified Professional Archaeologist:** Contractor's archaeologist who meets the Secretary of the Interior (SOI) Standards of Archaeology. The Qualified Professional Archaeologist shall be responsible for training contractor staff, implementing mitigation, and coordinating the status of the archaeological mitigation with the Authority in accordance with this MMRP.
- **Archaeological Monitor:** Contractor's field crew responsible for field monitoring of archaeological mitigation in accordance with this MMRP. The contractor shall determine how many Archaeological Monitors are needed to satisfy the mitigation requirements.
- **Post Construction Contractor:** Hired by the Authority to perform post construction activities associated with traffic monitoring and implementing defined additional measures if traffic congestion thresholds are met.
- **Authority:** Designated Authority representative responsible for implementing or monitoring and reporting mitigation measures as specified in this MMRP

Mitigation Timing (Implementation Schedule/Reporting Schedule): Not all mitigation actions will occur at the same time. Depending upon the measure, it may be undertaken prior to construction, during construction, or during project operations. Measures may also be undertaken in conjunction with different construction packages or at such time as project operations reach a certain level. This column of the table identifies the stage of the project during which the mitigation action will be taken and when reporting is to occur, if reporting is required.

Implementation Mechanism or Tool: Identifies the actions required to implement the measures, including any required agreements and/or conditions.

As the lead agency and proponent of this project, the Authority will implement the mitigation measures through its own actions, those of its contractors, and actions taken in cooperation with other agencies and entities. The Authority is ultimately accountable for the overall administration of the mitigation monitoring program and for assisting relevant individuals and parties in their oversight and reporting responsibilities. The responsibilities of mitigation implementation, monitoring, and reporting extend to several entities as discussed above; however, the Authority will bear the primary responsibility for verifying that the mitigation measures are implemented.

The Authority defines the mitigation measures required for the project. When project work is undertaken by the Authority's contractor, the Contractor shall implement the mitigation measures that are pertinent to their scope of work. The Contractor shall monitor construction activities to ensure that the mitigation measures are being properly implemented and accurately report their activity and results to the Authority. The Authority will periodically check the Contractor's activity, reports, and effectiveness of mitigation activities.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Transportation ¹								
TR #1: Permanent Road Closures.	TR MM#1: Access Maintenance for Property Owners. Maintain access for owners to property within the construction area to a level that maintains pre-project viability of the property for its pre-project use. If a proposed road closure restricts current access to a property, provide alternative access via connections to existing roadways. If adjacent road access is not available, prepare new road connections, if feasible. If alternative road access is not feasible, the property will be acquired.	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify noticing obligations are met.		X			Prepare advanced noticing prior to construction/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #2: Fresno Area between Herndon Avenue and Shaw Avenue Intersection Impacts –Existing Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. Add traffic signals to affected unsignalized intersections in order to improve LOS and intersection operation. • Cornelia Avenue/Shaw Avenue	Implementing Party: Authority. Monitoring/Reporting Party: Authority		X			Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	Memorandum of Understanding with the City of Fresno
	TR MM#7: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation. • Blythe Avenue/Shaw Avenue – eastbound approach	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. Add exclusive turn lanes at specific intersections in order to improve LOS and intersection operations. The traffic impacts associated at the identified intersections would be addressed by: • Signalizing the intersection at Cornelia Ave./Shaw Ave. and widening the approach at Blythe Avenue/Shaw Avenue to provide second left-turn lane	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #2: Fresno Area between Herndon Avenue and Shaw Avenue Intersection Impacts – Future (2035) Plus Project.	TR MM#3: Modify Signal Phasing. Modify traffic signal phasing sequence to improve operations at a signalized intersection. • Veterans Boulevard/Golden State Boulevard Connector – modify northbound and southbound right-turn as free movements	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. This mitigation is only necessary when signal warrants are met, and such warrants for certain of the intersections requiring this mitigation are met after 2020, as described in the Final EIR/EIS. Such intersections shall be monitored on an annual basis and signal installed when warrants are met. • Golden State Boulevard/Santa Ana Avenue • Cornelia Avenue/Shaw Avenue • Cornelia Avenue/Golden State Boulevard	Implementing Party: Authority. Monitoring/Reporting Party: Authority.			X		Annual signal warrant analysis. Installation of signal when warrant criteria are met.	Memorandum of Understanding with the City of Fresno
	TR MM#5: Restripe Intersections. Restripe specific intersections surrounding proposed HST station locations in order to improve LOS and	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions.		X			Prepare construction management	Contract Requirements/Specifications

¹ Information displayed in the “Mitigation Timing” column for Transportation mitigations derived from MMRP Traffic Memo.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	intersection operations. <ul style="list-style-type: none">Figarden Drive/Bullard Avenue – westbound approach to provide two left-turn lanes, one through lane and one right-turn laneVeterans Boulevard/Bullard Avenue – eastbound approach to provide one left-turn lane and two right-turn lanes; northbound approach to provide three left-turn lanes and one through laneVeterans Boulevard/Golden State Boulevard Connector – eastbound approach to provide one left-turn lane and four through lanes	Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.					plan/maintain weekly reporting schedule	
	TR MM#6: Modify Signal Timing. Modify signal timing (to optimize cycle length and/or splits) at specific intersections surrounding proposed HST station locations in order to improve LOS and intersection operations. <ul style="list-style-type: none">Veterans Boulevard/Bullard AvenueVeterans Boulevard/Golden State Boulevard Connector	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#7: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation. <ul style="list-style-type: none">Golden State Boulevard/Santa Ana Avenue – northbound approach on Golden State Boulevard and widen downstream on Santa Ana AvenueCornelia Avenue/Shaw Avenue – westbound approach, northbound approach, and southbound approach; widen downstream on Cornelia AvenueBlythe Avenue/Shaw Avenue – eastbound approachVeterans Boulevard/Golden State Boulevard Connector – westbound approach	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. Add exclusive turn lanes at specific intersections in order to improve LOS and intersection operations. The traffic impacts associated at the identified intersections would be addressed as follows: <ul style="list-style-type: none">Golden State Boulevard/Santa Ana Avenue – northbound approach on Golden State Boulevard to provide dual left-turn lanes and one through lane; widen downstream on Santa Ana Avenue to two receiving lanes from one receiving laneCornelia Avenue/Shaw Avenue – restripe eastbound approach to provide one left-turn lane, two through lanes, and one right-turn lane; westbound approach to provide two left-turn lanes, two through lanes, and one right-turn lane; northbound approach to provide one left-turn lane, one through lane, and one channelized right-turn; and southbound approach to provide one left-turn lane, one through lane, and one right-turn lane; downstream on Cornelia Avenue to two receiving lanes from one receiving laneBlythe Avenue/Shaw Avenue – eastbound approach to provide a second left-turn laneVeterans Boulevard/Golden State Boulevard Connector – westbound approach to provide additional left-turn lane and a through lane	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	TR-MM#9: Convert Two-Way- Stop to Four-Way Stop. Convert two-way stop controlled intersection to an all-way stop controlled intersection.	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	
	TR MM#10: Grade Separate Through Movements. Modify the intersection to provide an overpass for through movements to improve LOS and intersection operations. The traffic impacts associated at the identified intersections would be addressed by (per Final EIR/S Table 3.2-53): <ul style="list-style-type: none">• signalizing the intersection, widening the northbound approach to provide dual left-turn lanes and one through lane, and widening downstream of Santa Ana Avenue from one receiving lane to two receiving lanes to accommodate the dual left-turn lanes from northbound approach on Golden State Boulevard for the Golden State Boulevard/Santa Ana Avenue intersection• signalizing the intersection, restriping eastbound approach to provide one left-turn lane, two through lanes, and one right-turn lane, widening westbound approach to provide two left-turn lanes, two through lanes and one right-turn lane, widening northbound approach to provide one left-turn lane, one through lane, and one channelized right-turn, widening southbound approach to provide one left-turn lane, one through lane, and one right-turn lane, and widening downstream on Cornelia Avenue form one receiving lane to two receiving lanes to accommodate the second left-tune lane from westbound approach on Shaw Avenue for the Cornelia Avenue/Shaw Avenue intersection• widening eastbound approach to provide a second left-turn lane at Blythe Avenue/Shaw Avenue• signalizing the intersection at Cornelia Avenue/Golden State Boulevard• restriping westbound approach to provide two left-turn lanes, one through lane and one right-turn lane for the Figarden Drive/Bullard Avenue intersection• grade separating through movement on Veterans Boulevard, restriping eastbound approach to provide one left-turn lane and two right-turn lanes, restriping northbound approach to provide three left-turn lanes and one through lane, and modifying the signal timing at the Veterans Boulevard/Bullard Avenue intersection• restriping eastbound approach to provide one left-turn lane and four through lanes, widening westbound approach to provide additional left-turn lane and a through lane, and modify northbound and southbound right-turn as free movements at the Veterans Boulevard/Golden State Boulevard connector.	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
TR #3: Fresno Area between Herndon Avenue and Shaw Avenue Roadway Impacts – Future (2035) Plus Project.	TR MM#11: Add Lanes to the Segment. Add travel lanes to the roadway segment in order to increase capacity and improve roadway operations. <ul style="list-style-type: none">Veterans Boulevard between Golden State Boulevard and Bullard Avenue – one lane in each direction	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #4: Fresno Area between McKinley Avenue and SR 180 Roadway Impacts – Future (2035) Plus Project.	TR MM#11: Add Lanes to the Segment. Add travel lanes to the roadway segment in order to increase capacity and improve roadway operations. The traffic impacts associated at the identified roadway segments would be addressed by (per FEIR/S Table 3.2-55): <ul style="list-style-type: none">adding one lane in each direction along West Olive Avenue between SR 99 ramps and North West Avenueadding one lane in each direction along West Belmont Avenue between North Arthur Avenue and SR 99 ramps	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #5: Fresno Area between McKinley Avenue and SR 180 Intersection Impacts – Existing Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. The traffic impacts associated at the identified roadway segments would be addressed by (per FEIR/S Table 3.2-55): <ul style="list-style-type: none">Signalizing the intersection at the West Olive Avenue/SR 99 southbound rampsSignalizing the intersection and providing at West Belmont Avenue/SR 99 southbound ramps a protected phasing for westbound left-turn movementSignalizing the intersection at West Belmont Avenue/SR 99 northbound ramps	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #5: Fresno Area between McKinley Avenue and SR 180 Intersection Impacts – Future (2035) Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. Signalize and improve the following intersections as described above for TR MM#4: <ul style="list-style-type: none">West Olive Avenue/North West AvenueWest Belmont Avenue/ SR 99 southbound rampsWest Belmont Avenue/ SR 99 northbound ramps	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#7: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation. <ul style="list-style-type: none">West Olive Avenue/SR 99 southbound ramps – southbound approachWest Olive Avenue/SR 99 northbound ramps – northbound approach	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. The traffic impacts associated at the identified intersections would be addressed by (per Final EIR/S Table 3.2-55):	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">widening the southbound approach to provide additional left-turn lane at West Olive Avenue/SR 99 southbound rampswidening the northbound approach to provide exclusive left-turn lane at West Olive Avenue/SR 99 northbound rampssignalizing the intersection at West Olive Avenue/North West Avenuesignalizing the intersection at West Belmont Avenue/ SR 99 southbound rampssignalizing the intersection at West Belmont Avenue/ SR 99 northbound ramps							
TR #6: SR 99 Relocation Freeway Impacts – Future (2035) Plus Project.	TR MM#2: Add Southbound Auxiliary Lane to SR 99. Add southbound auxiliary lane south of the Clinton Avenue on-ramp to Olive Avenue.	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions and Caltrans. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #7: SR 99 Relocation Intersection Impacts – Existing Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation Signalize and improve the following intersection as described above for TR MM#4: <ul style="list-style-type: none">Dakota Avenue/Brawley Avenue	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#5: Restripe Intersections. Restripe the following intersection as described above for TR MM#5: <ul style="list-style-type: none">Dakota Avenue/Brawley Avenue – northbound approach include exclusive left-turn lane and shared through-right-turn lane	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#7: Widen Approaches to Intersections. Widen the following intersections as described above for TR MM#7: <ul style="list-style-type: none">Clinton Avenue/Weber Avenue – southbound approach; eastbound approachDakota Avenue/Brawley Avenue – southbound approach	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. The traffic impacts associated at the identified intersections associated with the SR 99 realignment would be addressed by (per Final EIR/S Table 3.2-56): <ul style="list-style-type: none">widening southbound approach to provide second left-turn lane and widening northbound approach to provide second left-turn lane for the Clinton Avenue/Weber Avenue intersectionsignalizing the intersection, restriping northbound approach to include exclusive left-turn lane and shared through-right-turn lane, and widening southbound approach to include exclusive left-turn, through, and exclusive right-turn lanes for the Dakota Avenue/Brawley Avenue intersection	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
TR #7: SR 99 Relocation Intersection Impacts – Future (2035) Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation Signalize and improve the following intersections as described above for TR MM#4: <ul style="list-style-type: none">Shields Avenue/Brawley AvenueDakota Avenue/Brawley Avenue -	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#5: Restripe Intersections. Restripe the following intersections as described above for TR MM#5: <ul style="list-style-type: none">Clinton Avenue/Marks Avenue – southbound approach to include two left-turn lanes and one shared through-right-turn laneDakota Avenue/Brawley Avenue – northbound approach to include exclusive left-turn lane and shared through-right-turn lane; westbound approach to include exclusive left-turn lane and shared through-right-turn lane	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#7: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation. <ul style="list-style-type: none">Clinton Avenue/Brawley Avenue – southbound approachClinton Avenue/Marks Avenue – southbound approachClinton Avenue/SR 99 southbound ramps – eastbound approachClinton Avenue/Weber Avenue – southbound approach; eastbound approachDakota Avenue/Brawley Avenue – southbound approach; eastbound approachAshlan Avenue - SR 99 southbound ramps/Parkway Drive – northbound approach	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. The traffic impacts associated at the identified intersections would be addressed by (per Final EIR/S Table 3.2-57): <ul style="list-style-type: none">widening southbound approach to provide second left-turn lane at the Clinton Avenue/Brawley Avenue intersectionwidening northbound approach to provide exclusive northbound right-turn lane and restriping southbound approach to include two left-turn lanes and one shared through-right-turn lane at the Clinton Avenue/Marks Avenue intersectionwidening eastbound approach to provide exclusive eastbound right-turn lane at the Clinton Avenue/SR 99 southbound ramps intersectionwidening southbound approach to provide second left-turn lane and widening eastbound approach to provide second left-turn lane at the	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X			Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<div>Clinton Avenue/Weber Avenue intersection</div> <ul style="list-style-type: none">• signaling the intersection at Shields Avenue/Brawley Avenue• Signalizing the intersection, restriping northbound approach to include exclusive left-turn lane and shared through-right-turn lane, restriping westbound approach to include exclusive left-turn lane and shared through-right-turn lane, widening southbound approach to include exclusive left-turn, through, and exclusive right-turn lanes, and widening eastbound approach to include exclusive left-turn and shared through-right-turn lane at the Dakota Avenue/Brawley Avenue intersection• Adding second northbound right-turn lane at Ashland Avenue – SR 99 southbound ramps/Parkway Drive							
TR #8: HST Station Area Roadway Impacts – Existing Plus Project.	<div>TR MM#11: Add Lanes to the Segment.</div> <div>Merced Station</div> <ul style="list-style-type: none">• M Street between 13th Street and 16th Street – adding one travel lane in each direction• V Street west of 13th Street (Option A only) - adding one travel lane in each direction <div>Fresno Station</div> <ul style="list-style-type: none">• n/a	<div>Implementing Party:</div> Contractor will prepare construction plans and provide copies to affected jurisdictions. <div>Monitoring/Reporting Party:</div> Mitigation Manager will verify compliance as identified in construction plans.				X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
TR #8: HST Station Area Roadway Impacts – Future (2035) Plus Project.	<div>TR MM#11: Add Lanes to the Segment.</div> <div>Merced Station</div> <ul style="list-style-type: none">• Main Street between Yosemite Parkway and G Street – add one travel lane in each direction• 16th Street between R Street and Martin Luther King Jr. Way – add one travel lane in each direction• V Street west of 13th Street to 16th Street (Option B only) – add one travel lane in each direction• M Street between 13st Street and 16th Street – add one travel lane in each direction• Martin Luther King Jr. Way between Childs Avenue and 13th Street – add one travel lane in each direction• S Street between 13th Street and 16th Street – add one travel lane in each direction <div>Fresno Station</div> <ul style="list-style-type: none">• H Street between East Divisadero Street and Stanislaus Street – add one travel lane in each direction• Stanislaus Street between Broadway Street and E Street – add one travel lane in each direction• Fresno Street between Van Ness Avenue and Broadway Street (Tulare Street Overpass Option only) – add one travel lane in each direction• Fresno Street between G Street and SR 99 northbound ramps – add one travel lane in each direction• Tulare Street between Broadway Street and Van Ness Avenue (Tulare Street Underpass Option only) – add one travel lane in each direction	<div>Implementing Party:</div> Contractor will prepare construction plans and provide copies to affected jurisdictions. <div>Monitoring/Reporting Party:</div> Mitigation Manager will verify compliance as identified in construction plans.		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">Divisadero Street between North Fresno Street and SR 41 ramps – add one travel lane in each directionVan Ness Avenue between Ventura Avenue and SR 41 ramps (Tulare Street Overpass Option only) – add one travel lane in each directionStanislaus Street between E Street and F Street (Tulare Street Overpass Option only) – add one travel lane in each directionF Street between Stanislaus Street and Tuolumne Street (Tulare Street Overpass Option only) – add one travel lane in each directionStanislaus Street between G Street and H Street (Tulare Street Overpass Option only) – add one travel lane in each directionStanislaus Street between Broadway Street and Fulton Street – add one travel lane in each directionStanislaus Street between L Street and M Street (Tulare Street Underpass Option only) – add one travel lane in each direction							
TR #9: HST Station Area Intersection Impacts – Existing Plus Project.	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. Signalize and improve the following intersections as described above for TR MM#4: <u>Merced Station</u> <ul style="list-style-type: none">16th/SR 5913th Street/G StreetSR 99 northbound off-ramps/SR 140 <u>Fresno Station</u> <ul style="list-style-type: none">H Street/Ventura Street (Tulare Street Underpass Option Only)Stanislaus Street/F StreetStanislaus Street/N Street	Implementing Party: Contractor (post-construction contractor) Monitoring/Reporting Party: Authority will monitor and report intersection monitoring and signal construction			X	X	Contractor (post-construction contractor) will monitor intersection and then construct new signal based on warrant, in coordination with local jurisdictions. Authority will monitor signal construction and coordinate with local jurisdictions.	Memorandum of Understanding with the City of Fresno
	TR MM#5: Restripe Intersections. Restripe the following intersections as described above for TR MM#5: <u>Merced Station</u> <ul style="list-style-type: none">16th Street/Canal Street – eastbound approach from one shared-through left lane and one exclusive right-turn lane to one exclusive left-turn lane and a shared through-right lane <u>Fresno Station</u> <ul style="list-style-type: none">SR 99 northbound ramps/Ventura Avenue – northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane at the intersection	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X		X	Construction	Contract Requirements/Specifications
	TR MM#6: Modify Signal Timing. Modify signal timing at the following intersections as described above for TR MM#6:	Implementing Party: Contractor in coordination with affected jurisdiction. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<u>Merced Station</u> <ul style="list-style-type: none">n/a <u>Fresno Station</u> <ul style="list-style-type: none">Divisadero Street/SR 41 northbound ramps/Tulare Street – re-time existing signalH Street/Divisadero Street – re-time existing signal in AMNorth Blackstone Avenue/SR 180 westbound ramps – re-time existing signal in AM							
	TR MM#7: Widen Approaches to Intersections. Widen approaches as described above for TR MM#7: <u>Merced Station</u> <ul style="list-style-type: none">15th Street/M Street intersection (Option A only) – eastbound approach; westbound approach14th Street/Martin Luther King Jr. Way intersection – southbound approach <u>Fresno Station</u> <ul style="list-style-type: none">n/a	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#8: Add Exclusive Turn Lanes to Intersections. <u>Merced Station</u> The traffic impacts associated with the Merced Station at the identified roadway segments would be addressed by (per Table 3.2-59): <ul style="list-style-type: none">adding one travel lane in each direction on Main Street between Yosemite Parkway and G Streetadding one travel lane in each direction on 16th Street between R Street and Martin Luther King Jr. Wayadding one travel lane in each direction on V Street west of 13th Street to 16th Street (Option B only)adding one travel lane in each direction on M Street between 13st Street and 16th Streetadding one travel lane in each direction on Martin Luther King Jr. Way between Childs Avenue and 13th Streetadding one travel lane in each direction on S Street between 13th Street and 16th Street <u>Fresno Station</u> The traffic impacts associated with the Fresno Station at the identified roadway segments would be addressed by (per Final EIR/S Table 3.2-60): <ul style="list-style-type: none">add one travel lane in each direction on H Street between East Divisadero Street and Stanislaus Streetadding one travel lane in each direction on Stanislaus Street between	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<div>Broadway Street and E Street</div> <ul style="list-style-type: none">• adding one travel lane in each direction on Fresno Street between Van Ness Avenue and Broadway Street (Tulare Street Underpass Option only)• adding one travel lane in each direction on Fresno Street between G Street and SR 99 northbound ramps• adding one travel lane in each direction on Tulare Street between Broadway Street and Van Ness Avenue (Tulare Street Underpass Option only)• adding one travel lane in each direction on Divisadero Street between North Fresno Street and SR 41 ramps• adding one travel lane in each direction on Van Ness Avenue between Ventura Avenue and SR 41 ramps (Tulare Street Overpass Option only)• adding one travel lane in each direction on Stanislaus Street between E Street and F Street (Tulare Street Overpass Option only)• adding one travel lane in each direction on F Street between Stanislaus Street and Tuolumne Street (Tulare Street Overpass Option only)• adding one travel lane in each direction on Stanislaus Street between G Street and H Street (Tulare Street Overpass Option only)• adding one travel lane in each direction on Stanislaus Street between Broadway Street and Fulton Street• adding one travel lane in each direction on Stanislaus Street between L Street and M Street (Tulare Street Underpass Option only)							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
TR #9: HST Station Area Intersection Impacts – Future (2035) Plus Project.	TR MM#3: Modify Signal Phasing. <u>Modify signal phasing as described in TR MM#3 above:</u> <u>Merced Station</u> <ul style="list-style-type: none">16th Street/Martin Luther King Jr. Way – change northbound/southbound split phasing to protected phasing <u>Fresno Station</u> <ul style="list-style-type: none">Broadway Avenue/Ventura Avenue - provide protected left turn phases for the northbound and southbound approachesVan Ness Avenue/Ventura Street - provide protected left-turn phases for the northbound and southbound approachesE Street/Tulare Street (Tulare Street Overpass Option only) – provide protected left-turn phases for the eastbound and westbound approachesF Street/Tulare Street (Tulare Street Underpass Option only) – provide protected left-turn phases for all approachesH Street/Tulare Street (Tulare Street Underpass Option only) – provide protected left-turn phases for all approachesU Street/Tulare Street – provide protected left-turn phases for the eastbound and westbound approachesFresno Street/Divisadero Street – provide split phases for the eastbound and westbound approachesE Street/Stanslaus Street (Tulare Street Overpass Option only) – provide split phasing on eastbound and westbound approachesBroadway Street/Stanslaus Street (Tulare Street Overpass Option only) – provide permissive phase on northbound and southbound approachesSouth Van Ness Avenue/East California Avenue – provide protected plus permissive left-turn phasing for northbound and southbound approachesGolden State Boulevard/East Church Avenue – provide protected plus permissive left-turn phase on all approaches	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions. Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	TR MM#4: Add Signal to Intersection to Improve LOS/Operation. <u>Add signals as described in TR MM#4 above:</u> <u>Merced Station</u> <ul style="list-style-type: none">16th Street/SR 99 – providing signal phasing to “overlap” northbound right-turn movement with westbound left-turn movement and westbound right-turn with southbound left-turn movement15th Street/M Street – meets signal warrant between 2020 and 2025SR 99 southbound ramps/Martin Luther King Jr. WaySR 99 northbound ramps/Martin Luther King Jr. Way14th Street/Martin Luther King Jr. Way13th Street/G StreetSR 99 southbound off-ramp/14st Street/G StreetSR 99 northbound off-ramp/Yosemite Parkway13th Street/M Street – meets signal warrant between 2020 and 202514th Street/M Street – meets signal warrant between 2020 and 2025	Implementing Party: Contractor (post-construction contractor) Monitoring/Reporting Party: Authority will monitor and report intersection monitoring and signal construction			X	X	Contractor (post-construction contractor) will monitor intersection and then construct new signal based on warrant, in coordination with local jurisdictions. Weekly/monthly reporting as needed to document completion of improvements.	Intersections will have to be monitored once a year to determine if/when the warrant is met.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">15th Street/Canal Street – meets signal warrant between 2020 and 202511th Street/Martin Luther King Jr. Way – meets signal warrant between 2020 and 2025Main Street/H Street – meets signal warrant between 2020 and 2025 <u>Fresno Station</u> <ul style="list-style-type: none">SR 99 northbound ramps/Ventura AvenueE Street/Ventura AvenueH Street/San Joaquin StreetH Street/Amador StreetBroadway Street/Amador StreetH Street/Ventura Street (Tulare Street Underpass Option only)G Street/Mono Street (Tulare Street Underpass Option only)South Van Ness Avenue/East California Street							
	<p>TR MM#5: Restripe Intersections.</p> <p>Restripe intersections as described in TR MM#5 above:</p> <u>Merced Station</u> <ul style="list-style-type: none">13th Street - SR 99 southbound off-ramp/V Street – southbound approach from left-turn, through, shared through-right-turn lane to left-turn lane, and shared through-right-turn lane13th Street/G Street – northbound approach from single lane to shared left-through and right-turn lane; westbound approach from an exclusive right-turn lane to a shared through-right-turn laneSR 99 northbound off-ramp/Yosemite Parkway – eastbound approach to provide a second through laneMotel Drive/Glen Avenue/Yosemite Parkway – southbound approach to provide exclusive right-turn lane and restriping eastbound approach from exclusive right-turn lane to a shared though-right-turn lane; eastbound approach from exclusive right-turn lane to a shared though-right-turn lane <u>Fresno Station</u> <ul style="list-style-type: none">Van Ness Avenue/SR 41 northbound ramp – eastbound approach to provide one exclusive left-turn lane and on shared left/through/right-turn laneSR 99 northbound ramps/Fresno Street (Tulare Street Underpass Option) – eastbound approach to provide two exclusive left-turn lanes and one exclusive through laneSR 99 northbound ramps/Fresno Street (Tulare Street Overpass Option) – westbound approach to provide one through lane, one shared through/right-turn lane, and one exclusive right-turn laneE Street/Stanslaus Street (Tulare Street Overpass Option only) – westbound approach to provide one shared left/though lane, one through lane, and one shared through/right-turn lane; southbound approach to provide one shared left/through lane and one exclusive right-turn laneBroadway Street/Stanslaus Street (Tulare Street Overpass Option only) – southbound approach to provide shared left/through lane and on exclusive	<p>Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions.</p> <p>Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.</p>		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<p>right-turn lane</p> <ul style="list-style-type: none">• H Street/Divisadero Street – westbound approach to provide one shared through/right/left-turn lane and two exclusive right-turn lanes• Van Ness Avenue/SR 180 eastbound ramps – northbound approach to provide one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane• North Abby Street/SR 180 eastbound ramps – northbound approach to provide one shared left/through lane, one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane• Fresno Street/F Street (Tulare Street Underpass Option) – northbound approach to provide one exclusive left-turn lane, on exclusive through lane, and one shared through/right-turn lane• Fresno Street/F Street (Tulare Street Overpass Option) – northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane• Tuolumne Street/F Street (Tulare Street Overpass Option only) – eastbound approach to provide one exclusive left-turn lane, one shared left/through lane and one exclusive right-turn lane							
	<p>TR MM#6: Modify Signal Timing.</p> <p>Modify signal timing as described in TR MM#6 above:</p> <p><u>Merced Station</u></p> <ul style="list-style-type: none">• 16th Street/V Street• Main Street/G Street - optimizing cycle length <p><u>Fresno Station</u></p> <ul style="list-style-type: none">• South East Avenue/Golden State Boulevard - increasing the cycle length (in the PM Peak Hour only)	<p>Implementing Party: Contractor in coordination with affected jurisdiction.</p> <p>Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.</p>		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications
	<p>TR MM#7: Widen Approaches to Intersections.</p> <p>Widen approaches as described in TR MM#7 above:</p> <p><u>Merced Station</u></p> <ul style="list-style-type: none">• 16th Street/SR 59 – northbound approach; westbound approach• 13th Street – SR 99 southbound off-ramp/V Street – SR 99 southbound off-ramp• Childs Avenue/Martin Luther King Jr. Way – southbound approach• 13th Street/G Street – eastbound approach• SR 99 northbound off-ramp/Yosemite Parkway – westbound approach <p><u>Fresno Station</u></p> <ul style="list-style-type: none">• Broadway Avenue/Ventura Avenue (Tulare Street Underpass Option) - northbound approach• Broadway Avenue/Ventura Avenue (Tulare Street Overpass Option) - eastbound approach	<p>Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions.</p> <p>Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.</p>		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">• H Street/Kern Street (Tulare Street Underpass Option only) – eastbound approach• E Street/Tulare Street intersection (Tulare Street Overpass Option only) – southbound approach; westbound approach• F Street/Tulare Street (Tulare Street Underpass Option only) – northbound approach; southbound approach; westbound approach• H Street/Tulare Street (Tulare Street Underpass Option only) – westbound approach; northbound approach; southbound approach• Van Ness Avenue/Tulare Street (Tulare Street Underpass Option only) – westbound approach• SR 99 southbound ramps/Fresno Street – eastbound approach• Van Ness Avenue/Fresno Street (Tulare Street Underpass Option) – southbound approach• Van Ness Avenue/Fresno Street (Tulare Street Overpass Option) – northbound approach; eastbound approach• Van Ness Avenue/Tuolumne Street –eastbound approach• Van Ness Avenue/Stansislaus Street (Tulare Street Underpass Option only) – westbound approach• H Street/Amador Street – southbound approach• H Street/Divisadero Street –northbound approach; southbound approach• Van Ness Avenue/Divisadero Street – eastbound approaches; westbound approach• H Street/Roosevelt Street – westbound approach (H Street)• North Blackstone Avenue/East McKenzie Avenue – westbound approach• Van Ness Avenue/SR 180 westbound ramps – eastbound approach• North Blackstone Avenue/East Belmont Avenue – southbound approach• North Blackstone Avenue/SR 180 westbound ramps – eastbound approach• Fresno Street/F Street (Tulare Street Underpass Option) – westbound approach; eastbound approach• Fresno Street/F Street (Tulare Street Overpass Option) –westbound approach; eastbound approach• South Van Ness Avenue/East California Street – northbound approach; southbound approach• Stanislaus Street/F Street (Tulare Street Overpass Option only) – northbound approach• Stanislaus Street/L Street – northbound approach• Stanislaus Street/M Street – southbound approach• Stanislaus Street/N Street – westbound approach							
	<p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p> <p>Add turn lanes as described in TR MM#8 above: <u>Merced Station</u></p> <ul style="list-style-type: none">• 16th Street/SR 59 - northbound approach to add second right-turn lane; westbound approach to add second left-turn lane• 13th Street – SR 99 southbound off-ramp/V Street – SR 99 southbound off-ramp to add exclusive right-turn lane• Childs Avenue/Martin Luther King Jr. Way – southbound approach on	<p>Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions</p> <p>Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.</p>		X		X	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<div>Childs Avenue to provide exclusive right-turn lane</div> <ul style="list-style-type: none">13th Street/G Street – northbound approach from single lane to shared left-through and right-turn lane; westbound approach from an exclusive right-turn lane to a shared through-right-turn lane; eastbound approach to provide a second through laneMotel Drive/Glen Avenue/Yosemite Parkway – southbound approach to provide exclusive right-turn lane and restriping eastbound approach from exclusive right-turn lane to a shared though-right-turn lane; eastbound approach from exclusive right-turn lane to a shared though-right-turn lane <div>Fresno Station</div> <ul style="list-style-type: none">Van Ness Avenue/SR 41 northbound ramp – eastbound approach to provide one exclusive left-turn lane and on shared left/through/right-turn laneBroadway Avenue/Ventura Avenue (Tulare Street Underpass Option) – northbound approach to add one exclusive right-turn, one left-turn lane, and one through laneBroadway Avenue/Ventura Avenue (Tulare Street Overpass Option) – eastbound approach to add two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane; provide protected left-turn phases for the northbound and southbound approachesH Street/Kern Street (Tulare Street Underpass Option only) – eastbound approach to provide one exclusive left-turn lane and one exclusive right-turn laneE Street/Tulare Street intersection (Tulare Street Overpass Option only) – southbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane; westbound approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn laneF Street/Tulare Street (Tulare Street Underpass Option only) – northbound approach to provide one exclusive left-turn and one shared through/right-turn lane; southbound approaches to provide one exclusive left-turn lane and one shared through/right-turn lane; westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and one through laneH Street/Tulare Street (Tulare Street Underpass Option only) –westbound approach to provide one exclusive right-turn lane, on exclusive left-turn lane, and two through lanes; northbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes; and southbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanesVan Ness Avenue/Tulare Street (Tulare Street Underpass Option only) – westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn laneSR 99 southbound ramps/Fresno Street – eastbound approach to provide two exclusive through lanes and one exclusive through lanes and one exclusive right-turn lane							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">SR 99 northbound ramps/Fresno Street (Tulare Street Underpass Option) – eastbound approach to provide two exclusive left-turn lanes and one exclusive through laneSR 99 northbound ramps/Fresno Street (Tulare Street Overpass Option) – westbound approach to provide one through lane, one shared through/right-turn lane, and one exclusive right-turn laneVan Ness Avenue/Fresno Street (Tulare Street Underpass Option) – southbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right turn laneVan Ness Avenue/Fresno Street (Tulare Street Overpass Option) – northbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane; eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn laneVan Ness Avenue/Tuolumne Street –eastbound approach to provide one exclusive left-turn lane, one through lane and one exclusive right-turn laneE Street/Stanislaus Street (Tulare Street Overpass Option only) – westbound approach to provide one shared left/through lane, one through lane, and one shared through/right-turn lane; southbound approach to provide one shared left/through lane and one exclusive right-turn laneBroadway Street/Stanislaus Street (Tulare Street Overpass Option only) – southbound approach to provide shared left/through lane and on exclusive right-turn laneVan Ness Avenue/Stanislaus Street (Tulare Street Underpass Option only) – westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn laneH Street/Amador Street – southbound approach to provide on exclusive left-turn lane and one through laneH Street/Divisadero Street –northbound approach to provide two exclusive left-turn lanes and one shared through/right-turn lane; southbound approach to provide additional left-turn lane (on H Street)Van Ness Avenue/Divisadero Street – eastbound approaches to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane; westbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn laneH Street/Roosevelt Street – westbound approach (H Street) to provide one shared through/right-turn lane, one exclusive through lane, and one exclusive left-turn laneNorth Blackstone Avenue/East McKenzie Avenue – westbound approach to provide one exclusive left0turn lane and one exclusive through laneVan Ness Avenue/SR 180 eastbound ramps – northbound approach to provide one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn laneVan Ness Avenue/SR 180 westbound ramps – eastbound approach to provide one additional exclusive left-turn laneNorth Blackstone Avenue/East Belmont Avenue – southbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn laneNorth Abby Street/SR 180 eastbound ramps – northbound approach to							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	<p>provide one shared left/through lane, one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane</p> <ul style="list-style-type: none">• North Blackstone Avenue/SR 180 westbound ramps – eastbound approach to provide one additional exclusive right-turn lane• Fresno Street/F Street (Tulare Street Underpass Option) – northbound approach to provide one exclusive left-turn lane, on exclusive through lane, and one shared through/right-turn lane; westbound approach to provide one exclusive left-turn lane, two through lanes and one exclusive right-turn lane; and eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane• Fresno Street/F Street (Tulare Street Overpass Option) – northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane; westbound approach to provide one exclusive left-turn lane, one through lane, one shared through/right-turn lane, and one exclusive right-turn lane; eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane• South Van Ness Avenue/East California Street – northbound approach to provide exclusive left-turn lane; southbound approach to provide exclusive left-turn lane• Golden State Boulevard/East Church Avenue – exclusive right-turn lane in the northbound direction• Golden State Boulevard/East Jensen Avenue – exclusive right-turn lane for both northbound and southbound approaches• Stanislaus Street/F Street (Tulare Street Overpass Option only) – northbound approach to provide one exclusive left-turn lane and two exclusive right-turn lanes• Tuolumne Street/F Street (Tulare Street Overpass Option only) – eastbound approach to provide one exclusive left-turn lane, one shared left/through lane and one exclusive right-turn lane• Stanislaus Street/L Street – northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane• Stanislaus Street/M Street – southbound approach to provide one shared left/through lane and one exclusive right-turn lane• Stanislaus Street/N Street – westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane							
	<p>TR MM#9: Convert Two-Way Stop to Four-Way Stop. Convert two-way stop controlled intersection to an all-way stop controlled intersection.</p> <ul style="list-style-type: none">• signalizing the intersection, widening northbound approach to add second right-turn lane, widening westbound approach to add second left-turn lane, providing signal phasing to “overlap” northbound right-turn movement with westbound left-turn movement and westbound right-turn with southbound left-turn movement at 16th Street/SR 59• restriping the southbound approach from left-turn, through, shared through-right-turn lane to left-turn lane, and shared through-right-turn lane and widening SR 99 southbound off-ramp to add exclusive right-turn lane at 13th Street – SR 99 southbound off-ramp/V Street• modifying the signal timing at 16th Street/V Street• signalizing the intersection at 15th Street/M Street (meets signal warrant between 2020 and 2025)	<p>Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions.</p> <p>Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.</p>	X				Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">widening the southbound approach on Childs Avenue to provide exclusive right-turn lane at Childs Avenue/Martin Luther King Jr. Waysignalizing the intersection at SR 99 southbound ramps/Martin Luther King Jr. Waysignalizing the intersection at SR 99 northbound ramps/Martin Luther King Jr. Waysignalizing the intersection at 14th Street/Martin Luther King Jr. Waysignalizing the intersection, restriping northbound approach from single lane to shared left-through and right-turn lane, widening eastbound approach to provide a second through lane, and restriping westbound approach from an exclusive right-turn lane to a shared through-right-turn lane at 13th Street/G Streetsignalizing the intersection at SR 99 southbound off-ramp/14st Street/G Streetsignalizing the intersection, restriping eastbound approach to provide a second through lane, and widening westbound approach to add a second through lane at SR 99 northbound off-ramp/Yosemite Parkwayrestriping southbound approach to provide exclusive right-turn lane and restriping eastbound approach from exclusive right-turn lane to a shared though-right-turn lane at Motel Drive/Glen Avenue/Yosemite Parkwayconverting two-way stop controlled intersection to an all-way stop controlled intersection at 14th Street/O Street (Option A only)signalizing the intersection at 13th Street/M Street (meets signal warrant between 2020 and 2025)signalizing the intersection at 14th Street/M Street (meets signal warrant between 2020 and 2025)signalizing the intersection at 15th Street/Canal Street (meets signal warrant between 2020 and 2025)signalizing the intersection at 11th Street/Martin Luther King Jr. Way (meets signal warrant between 2020 and 2025)signalizing the intersection at Main Street/H Street (meets signal warrant between 2020 and 2025)optimizing cycle length at Main Street/G Street <p>The traffic impacts associated with the Fresno Station at the identified intersections would be addressed by:</p> <ul style="list-style-type: none">restriping the eastbound approach to provide one exclusive left-turn lane and on shared left/through/right-turn lane at the intersection of Van Ness Avenue/SR 41 northbound rampsignalizing the intersection at SR 99 northbound ramps/Ventura Avenuesignalizing the intersection at Broadway Avenue/Ventura Avenuewidening the northbound approach to add one exclusive right-turn, one left-turn lane, and one through lane and modifying the signal phasing to provide protected left-turn phases for the northbound and southbound approaches for Broadway Avenue/Ventura Avenue (Tulare Street Underpass Option)widening the eastbound approach to add two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane and modifying the signal phasing to provide protected left-turn phases for the northbound and southbound approaches for Broadway Avenue/Ventura Avenue (Tulare Street Overpass Option)							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">• modifying the existing traffic signal phasing to provide protected left-turn phases for the northbound and southbound approaches for Van Ness Avenue/Ventura Street intersection• widening the east bound approach to provide one exclusive left-turn lane and one exclusive right-turn lane at the intersection at H Street/Kern Street (Tulare Street Underpass Option only)• widening the southbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane; widening the westbound approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn lane; and modifying the signal phasing to provide protected left-turn phases for the eastbound and westbound approaches for E Street/Tulare Street intersection (Tulare Street Overpass Option only)• widening the northbound approach to provide one exclusive left-turn, and one shared through/right-turn lane; widening the southbound approaches to provide one exclusive left-turn lane, and one shared through/right-turn lane; widening the westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and one through lane; and modifying the signal phasing to provide protected left-turn phases for all approaches for F Street/Tulare Street (Tulare Street Underpass Option only)• widening westbound approach to provide one exclusive right-turn lane, on exclusive left-turn lane, and two through lanes; widening northbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes; and widening southbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes for H Street/Tulare Street (Tulare Street Underpass Option only)• widening the westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane at the intersection of Van Ness Avenue/Tulare Street (Tulare Street Underpass Option only)• modifying the existing traffic signal phasing to provide protected left0turn phases for the eastbound and westbound approaches at U Street/Tulare Street• widening the eastbound approach to provide two exclusive through lanes and one exclusive through lanes and one exclusive right-turn lane at the intersection of SR 99 southbound ramps/Fresno Street• restriping the eastbound approach to provide two exclusive left-turn lanes and one exclusive through lane at SR 99 northbound ramps/Fresno Street (Tulare Street Underpass Option)• restriping the westbound approach to provide one through lane, one shared through/right-turn lane, and one exclusive right-turn lane at SR 99 northbound ramps/Fresno Street (Tulare Street Overpass Option)• widening the southbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right turn lane at the intersection of Van Ness Avenue/Fresno Street (Tulare Street Underpass Option)• widening the northbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane and widening the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane at the intersection of Van Ness Avenue/Fresno Street (Tulare Street Overpass Option)							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">• modifying the existing traffic signal to provide split phases for the eastbound and westbound approaches at the intersection of Fresno Street/Divisadero Street• widening eastbound approach to provide one exclusive left-turn lane, one through lane and one exclusive right-turn lane at Van Ness Avenue/Tuolumne Street• restriping the westbound approach to provide one shared left/though lane, one through lane, and one shared through/right-turn lane; restriping the southbound approach to provide one shared left/through lane and one exclusive right-turn lane; and modifying signal phasing to provide split phasing on eastbound and westbound approaches at E Street/Stanislaus Street (Tulare Street Overpass Option only)• restriping the southbound approach to provide shared left/through lane and one exclusive right-turn lane and modifying the signal phasing to provide permissive phase on northbound and southbound approaches at Broadway Street/Stanislaus Street (Tulare Street Overpass Option only)• widening westbound approach to provide one exclusive left turn lane, one through lane and one shared through/right-turn lane at Van Ness Avenue/Stanislaus Street (Tulare street Underpass Option only)• signalizing the intersection at H Street/San Joaquin Street• signalizing the intersection and widening southbound approach to provide on exclusive left-turn lane and one through lane at H Street/Amador Street• restriping the westbound approach to provide one shared through/right/left-turn lane and two exclusive right-turn lanes; widening the northbound approach to provide two exclusive left-turn lanes and one shared through/right-turn lane; and widening the southbound approach to provide additional left turn lane (on H Street) at H Street/Divisadero Street• widening the eastbound approaches to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane and widening the westbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane at the intersection of Van Ness Avenue/Divisadero Street• widening the westbound approach (S Street) to provide one shared through/right-turn lane, one exclusive through lane, and one exclusive left0turn lane at H Street/Roosevelt Street• widening the westbound approach to provide one exclusive left turn lane and one exclusive through lane at North Blackstone Avenue/East McKenzie Avenue• restriping the northbound approach to provide one exclusive through lane, one shared through/right0turn lane, and one exclusive right-turn lane at the intersection of Van Ness Avenue/SR 180 eastbound ramps• widening the eastbound approach to provide one additional exclusive left-turn lane at the intersection of Van Ness Avenue/SR 180 westbound ramps• widening the southbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane at the intersection of North Blackstone Avenue/East Belmont Avenue• restriping the northbound approach to provide one shared left/through lane, one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane at the intersection of North Abby Street/SR 180 eastbound ramps							

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	<ul style="list-style-type: none">widening the eastbound approach to provide one additional exclusive right-turn lane at the intersection of North Blackstone Avenue/SR 180 westbound rampssignalizing the intersection at Broadway Street/Amador Streetrestriping the northbound approach to provide one exclusive left-turn lane, on exclusive through lane, and one shared through/right-turn lane; widening the westbound approach to provide one exclusive left-turn lane, two through lanes and one exclusive right-turn lane; and widening the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane at Fresno Street/F Street (Tulare Street Underpass Option)restriping the northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane; widening the westbound approach to provide one exclusive left-turn lane, one through lane, one shared through/right-turn lane, and one exclusive right-turn lane; widening the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane at Fresno Street/F Street (Tulare Street Overpass Option)signalizing the intersection at H Street/Ventura Street (Tulare Street Underpass Option only)signalizing the intersection at G Street/Mono Street (Tulare Street Underpass Option only)signalizing the intersection; widening northbound approach to provide exclusive left-turn lane; widening southbound approach to provide exclusive left-turn lane; and modifying signal phasing on northbound and southbound approaches to provide protected plus permissive left-turn phasing at the intersection of South Van Ness Avenue/East California Streetproviding an exclusive right-turn lane in the northbound direction and modifying signal phasing on all approaches to provide protected plus permissive left turn phase at Golden State Boulevard/East Church Avenueincreasing the cycle length (in the PM Peak Hour only) at South East Avenue/Golden State Boulevardproviding an exclusive right-turn lane for both northbound and southbound approaches at Golden State Boulevard/East Jensen Avenuewidening the northbound approach to provide one exclusive left-turn lane and two exclusive right-turn lanes at Stanislaus Street/F Street (Tulare Street Overpass Option only)restriping the eastbound approach to provide one exclusive left-turn lane, one shared left/through lane and one exclusive right0turn lane at Tuolumne Street/F Street (Tulare Street Overpass Option only)widening the northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane at Stanislaus Street/L Streetwidening the southbound approach to provide one shared left/through lane and one exclusive right-turn lane at Stanislaus Street/M Streetwidening the westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane at Stanislaus Street/N Street							
	TR MM#9: Convert Two-Way Stop to Four-Way Stop. Convert two-way stop controlled intersection to an all-way stop controlled intersection.	Implementing Party: Contractor will prepare construction plans and provide copies to affected jurisdictions.				X	Prepare construction management	Contract Requirements/Specifications

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	<u>Merced Station</u> <ul style="list-style-type: none">14th Street/O Street (Option A only) <u>Fresno Station</u> <ul style="list-style-type: none">n/a	Monitoring/Reporting Party: Mitigation Manager will verify compliance as identified in construction plans.					plan/maintain weekly reporting schedule	
Air Quality and Global Climate Change								
AQ#1: Regional Impacts. Construction of the HST alternatives would exceed the CEQA emissions thresholds for volatile organic compound (VOC) and nitrogen oxide (NOx). Therefore, it could potentially cause violations of nitrogen dioxide (NO ₂) and ozone (O ₃) air quality standards or contribute substantially to NO ₂ and O ₃ existing or projected air quality violations	AQ-MM#1: Reduce Criteria Exhaust Emissions from Construction Equipment. This mitigation measure will apply to heavy-duty construction equipment used during the construction phase. All off-road construction diesel equipment will use the cleanest reasonably available equipment (including newer equipment and/or tailpipe retrofits), but in no case less clean than the average fleet mix, as set forth in CARB's Non-Road/Off-Road 2007 database. The contractor will document efforts it undertook to locate newer equipment (such as, in order of priority, Tier 4, Tier 3 or Tier 2 equipment) and/or tailpipe retrofit equivalents. The contractor shall provide documentation of such efforts, including correspondence with at least two construction equipment rental companies. A copy of each unit's certified tier specification and any required CARB or SJVAPCD operating permit will be made available at the time of mobilization of each piece of equipment. The contractor shall keep a written record (supported by equipment hours meters where available) of equipment usage during project construction for each piece of equipment.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager will verify that appropriate measures are incorporated into construction specifications.		X			Daily Recording/Weekly Reporting	A copy of each unit's certified tier specification and any required California Air Resources Board (CARB) or San Joaquin valley Air Pollution Control District (SJVAPCD) operating permit will be made available at the time of mobilization of each piece of equipment. When non-retrofitted Tier 3 engines are utilized, the contractor will document that no Tier 4 equipment or emissions equivalent retrofit equipment is available or practicable for a particular equipment type. Documentation will be provided in such instances by the contractors and at least two construction equipment rental companies.
	AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. This mitigation measure applies to on-road trucks used to haul construction materials, including fill, ballast, rail ties, and steel. Material hauling trucks will consist of an average fleet mix of equipment model year 2010 or newer, to the extent reasonably practicable. The contractor shall provide documentation of efforts to secure such fleet mix. The contractor shall keep a written record of equipment usage during project construction for each piece of equipment.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager will verify compliance of this measure during construction.		X			Prior to construction/weekly reporting	Contract Requirements/ Specifications
	AQ-MM#4: Offset Project Construction Emissions through a SJVAPCD Voluntary Emission Reduction Agreement (VERA). The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's actual emissions that exceed thresholds by providing funds for the district's Emission Reduction Incentive Program ² (SJVAPCD, 2011) to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality. The project will reduce actual construction emissions that exceed significance/General Conformity thresholds for NOx and VOC through the VERA program. At a minimum, mitigation/offsets shall occur in the year of impact, or as otherwise permitted by 40 CFR Part 93	Implementing Party: Contractor and Authority Monitoring/Reporting Parties: Authority & SJVAPCD		X			Prior to construction/weekly reporting	The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's emissions by providing funds for the district's Emission Reduction Incentive Program to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality.

² See www.valleyair.org/Grant_Programs/GrantPrograms.htm

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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AQ#2: Regional Impacts. Material hauling outside the SJVAB would exceed CEQA emission thresholds for NOx in the Bay Area Air Quality Management District (AQMD), East Kern APCD, Mojave Desert AQMD, and the SCAQMD for certain hauling scenarios. Therefore, it could potentially cause violations of NO ₂ and O ₃ air quality standards or contribute substantially to NO ₂ and O ₃ existing or projected air quality violations in those air districts.	Section 93.163.							
	AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. This measure is described above.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager will verify this measure is implemented during construction.		X			Construction/Weekly reporting	Contract Requirements/ Specifications
	AQ-MM#5: Purchase Offsets and Offsite Emission Mitigation for Emissions Associated with Hauling Ballast Material in the BAAQMD and SCAQMD Air Districts. Actual NO _x emissions from ballast hauling shall be reported to the South Coast AQMD and offsets purchased from the South Coast AQMD for actual emissions exceeding the thresholds. In the Bay Area AQMD, actual NO _x emissions above the district's significance threshold will be mitigated through an offsite emission mitigation program to achieve emission reduction due to material hauling in Bay Area AQMD. Potential offsite mitigation programs include the Bay Area AQMD's Carl Moyer Memorial Air Quality Standards Attainment Program (CMP) or other air district emission reduction incentive programs.	Implementing Party: The Authority Monitoring/Reporting Party: Mitigation Manager will review plans to confirm compliance with this measure.	X	X			Prior to construction/weekly reporting	Authority to coordinate the purchase of offsets with pertinent AQMDs.
AQ#3: Compliance with Air Quality Plans. Construction of the HST alternatives would exceed the CEQA emissions thresholds for VOC and NOx. Therefore, it would conflict with the 1-hour Ozone Attainment Plan and the 8-hour Ozone Attainment Plan.	AQ-MM#1: Reduce Criteria Exhaust Emissions from Construction Equipment This measure is described above.	Implementing Party: Contractor will incorporate appropriate measures into construction specifications. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.		X			Construction/weekly reporting	A copy of each unit's certified tier specification and any required California Air Resources Board (CARB) or San Joaquin valley Air Pollution Control District (SJVAPCD) operating permit will be made available at the time of mobilization of each piece of equipment. When non-retrofitted Tier 3 engines are utilized, the contractor will document that no Tier 4 equipment or emissions equivalent retrofit equipment is available or practicable for a particular equipment type. Documentation will be provided in such instances by the contractors and at least two construction equipment rental companies.
	AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment This measure is described above.	Implementing Party: Contractor will incorporate appropriate measures into construction specifications. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.		X			Construction/weekly reporting	Contract Requirements/Specifications
	AQ-MM#4: Offset Project Construction Emissions through a SJVAPCD Voluntary Emission Reduction Agreement (VERA). This measure is described above.	Implementing Party: Contractor Monitoring/Reporting Parties: Authority & SJVAPCD		X			Construction/weekly reporting	The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's emissions by providing funds for the district's Emission Reduction Incentive Program to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality.
	AQ-MM#5: Reduce the Potential Impact of Concrete Batch Plants.	Implementing Party: Contractor will identify location of concrete batch plants on construction plans and verify	X	X			Construction/weekly	Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Concrete batch plants will be sited at least 1,000 feet from sensitive receptors, including daycare centers, hospitals, senior care facilities, residences, parks, and other areas where people may congregate.	location is away from sensitive receptors. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.					reporting	Requirements/Specifications
AQ# 4: Local Impacts. Construction of the alignment may expose sensitive receptors to temporary substantial pollutant concentrations from concrete batch plants.	AQ-MM#5: Reduce the Potential Impact of Concrete Batch Plants. Concrete batch plants will be sited at least 1,000 feet from sensitive receptors, including daycare centers, hospitals, senior care facilities, residences, parks, and other areas where people may congregate.	Implementing Party: Contractor will identify location of concrete batch plants on construction plans and verify location is away from sensitive receptors. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.	X	X			Construction/weekly reporting	Contract Requirements/Specifications
Noise and Vibration								
N&V#1: Construction Noise	N&V-MM#1: Construction noise mitigation measures. Monitor construction noise to verify compliance with the limits. Provide the contractor the flexibility to meet the FTA construction noise limits in the most efficient and cost-effective manner. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. To meet required noise limits, the following noise control mitigation measures will be implemented as necessary, for nighttime and daytime: <ul style="list-style-type: none">• Install a temporary construction site sound barrier near a noise source.• Avoid nighttime construction in residential neighborhoods.• Locate stationary construction equipment as far as possible from noise-sensitive sites.• Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents.• During nighttime work, use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with spotters.• Use low-noise emission equipment.• Implement noise-deadening measures for truck loading and operations.• Monitor and maintain equipment to meet noise limits.• Line or cover storage bins, conveyors, and chutes with sound-deadening material.• Use acoustic enclosures, shields, or shrouds for equipment and facilities.• Use high-grade engine exhaust silencers and engine-casing sound insulation.• Prohibit aboveground jackhammering and impact pile driving during nighttime hours.• Minimize the use of generators to power equipment.• Limit use of public address systems.• Grade surface irregularities on construction sites.• Use moveable sound barriers at the source of the construction activity.• Limit or avoid certain noisy activities during nighttime hours.	Implementing Party: Contractor to incorporate measures into specifications. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.		X			Construction/weekly reporting	Contract Requirements/ Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver would reduce noise levels substantially. If pile driving is necessary, limit the time of day that the activity can occur.							
N&V#2: Construction Vibration	N&V-MM#2: Construction vibration mitigation measures. Building damage from construction vibration is only anticipated from impact pile driving at very close distances to buildings. If piling is more than 25 to 50 feet from buildings, or if alternative methods such as push piling or augur piling can be used, damage from construction vibration is not expected to occur. Other sources of construction vibration do not generate high enough vibration levels for damage to occur. When a construction scenario has been established, preconstruction surveys will be conducted at locations within 50 feet of piling to document the existing condition of buildings in case damage is reported during or after construction. Damaged buildings would be repaired or compensation paid.	Implementing Party: Contractor to incorporate measure into specifications. Monitoring/Reporting Party: Mitigation Manager will verify compliance during construction.	X	X	X		Ongoing monitoring during construction/post-construction monitoring as needed to assess damage to buildings	Contract Requirements/Specifications
N&V#3: Severe Operational Noise Impacts	N&V-MM#3: Implement California High-Speed Train Project Noise and Vibration Mitigation Guidelines. California High-Speed Train Project Noise and Vibration Mitigation Guidelines (Guidelines) will be applied for ballast and tie track along the alignment. These Noise Guidelines will also be applied for slab track along the alignment. The Guidelines are included as Attachment 1 to these CEQA Findings. Various options exist to address the potentially severe noise effects from HSTs and from shifting SR 99. With input from local jurisdictions and balancing technological factors, such as structural and seismic safety, cost, number of affected receptors, and effectiveness, mitigation measures from among those identified in the Guidelines and summarized below will be selected and implemented. The mitigation measure or suite of mitigation measures for severe noise impacts will be designed to reduce the noise level from HST operations from "severe" to "moderate" according to the provisions of the FRA noise and vibration manual (FRA 2005). The Guidelines include the following mitigation measures for severe operational noise impacts: <ul style="list-style-type: none">Install sound barriers. Depending on the height and location relative to the tracks, sound barriers can achieve between 5 and 15 dB of noise reduction. The primary requirements for an effective sound barrier are that the barrier must (1) be high enough and long enough to break the line-of-sight between the sound source and the receiver, (2) be of an impervious material with a minimum surface density of 4 pounds per square foot, and (3) not have any gaps or holes between the panels or at the bottom. Because many materials meet these requirements, aesthetics, durability, cost, and maintenance considerations usually determine the selection of materials for sound barriers. Depending on the situation, sound barriers can become visually intrusive. Typically, the sound barriers style is selected with input from the local jurisdiction to reduce the visual effect of barriers on adjacent lands uses. For example, sound barriers could be solid or transparent, of various colors, materials, and surface treatments.The maximum sound barrier height would be 14 feet for at-grade sections; however, all sound barriers would be designed to be as low as possible while still achieving a substantial noise reduction.	Implementing Party: Contractor to identify noise barriers in construction plans. Monitoring/Reporting Party: Mitigation Manager will review construction plans to verify compliance with measure.	X	X	X		Construction/weekly reporting	Noise and Vibration Mitigation Guidelines

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	<p>Berm and berm/wall combinations are the preferred types of sound barriers where space and other environmental constraints permit. Work with the communities to determine how the use and height of sound barriers would be determined using jointly developed performance criteria. Other solutions may result in higher numbers of residual impacts than reported herein. Options may be to reduce the height of sound barriers and combine barriers with sound insulation or to accept higher than the FRA's current noise thresholds.</p> <ul style="list-style-type: none">Install building sound insulation. Sound insulation of residences and institutional buildings to improve the outdoor-to-indoor noise reduction is a mitigation measure that can be provided when the use of sound barriers is not feasible in providing a reasonable level (5 to 7 dB) of noise reduction. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where sound barriers are not feasible or desirable and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dB) can often be achieved by adding an extra layer of glazing to windows, by sealing holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air conditioning so that windows do not need to be opened. Establish performance criteria to balance existing noise events and ambient roadway noise conditions as factors for determining mitigation measures.Acquire easements on properties severely affected by noise. Another option for mitigating noise impacts is for the Authority to acquire easements on residences likely to be affected by HST operations in which the homeowners would accept the future noise conditions. This approach is usually taken only in isolated cases where other mitigation options are infeasible, impractical, or too costly.							
	N&V-MM#4: Vehicle Noise Specification. In the procurement of an HST vehicle technology, the Authority will require bidders to meet the federal regulations (40 CFR Part 201.12/13 or other applicable) at the time of procurement for locomotives (currently a 90-dB level standard) and rail cars (currently a 93-dB level standard for cars operating at speeds of greater than 45 mph). Depending on the available technology, this could significantly reduce the number of impacts throughout the corridor.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager and Authority	X				Prior to construction/weekly reporting	HST vehicle technology procurement
	N&V-MM#5: Special Trackwork at Crossovers and Turnouts. Because the impacts of HST wheels over rail gaps at turnouts increases HST noise by approximately 6 dB over typical operations, turnouts can be a major source of noise impact. If the turnouts cannot be moved from sensitive areas, the project can use special types of trackwork that eliminate the gap.	Implementing Party: Contractor/Authority Monitoring/Reporting Party: Mitigation Manager to report noncompliance/noise issues				X	Post Construction/Operations Monitoring. Authority to coordinate with local jurisdictions to address noise-related issues.	
	N&V-MM#6: Additional Noise Analysis During Final Design. If final design of the track base or final vehicle specifications results in changes to the assumptions underlying the noise analysis, reassess noise impacts and recommendations for mitigation and provide supplemental environmental documentation, as required by CEQA and NEPA.	Implementing Party: Final Design Team Monitoring/Reporting Party: Mitigation Manager in coordination with Authority.	X	X			Prepare construction management plan/weekly reporting	Noise impact re-assessment during final project design
N&V#3: Severe Operational Noise	N&V-MM#4: Vehicle Noise Specification. In the procurement of an HST vehicle technology, the Authority will require bidders to meet the federal	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager and	X				Prior to construction/weekly	HST vehicle technology procurement

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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Impacts	regulations (40 CFR Part 201.12/13 or other applicable) at the time of procurement for locomotives (currently a 90-dB level standard) and rail cars (currently a 93-dB level standard for cars operating at speeds of greater than 45 mph). Depending on the available technology, this could significantly reduce the number of impacts throughout the corridor.	Authority					reporting	
	N&V-MM#5: Special Trackwork at Crossovers and Turnouts. Because the impacts of HST wheels over rail gaps at turnouts increases HST noise by approximately 6 dB over typical operations, turnouts can be a major source of noise impact. If the turnouts cannot be moved from sensitive areas, the project can use special types of trackwork that eliminate the gap.	Implementing Party: Contractor/Authority Monitoring/Reporting Party: Mitigation Manager to report noncompliance/noise issues				X	Post Construction/Operations Monitoring. Authority to coordinate with local jurisdictions to address noise-related issues.	
	N&V-MM#6: Additional Noise Analysis During Final Design. If final design of the track base or final vehicle specifications results in changes to the assumptions underlying the noise analysis, reassess noise impacts and recommendations for mitigation and provide supplemental environmental documentation, as required by CEQA and NEPA.	Implementing Party: Final Design Team Monitoring/Reporting Party: Mitigation Manager in coordination with Authority.	X	X			Prepare construction management plan/weekly reporting	Noise impact re-assessment during final project design
Public Utilities and Energy								
PUE #1: Conflicts with Existing Substations.	PUE-MM#1: Redesign to avoid substation. Roadway modifications associated with the Hybrid Alternative would affect a substation. The final project design will avoid these conflicts through refinements of project features.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager/Authority in coordination with affected utility provider.	X				Prepare construction management plan/weekly reporting	Condition of Design/Build Contract
Biological Resources								
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. Prior to ground-disturbing activities, the Mitigation Manager or designee will prepare and implement a WEAP for construction crews. WEAP training materials will include the following: discussion of the federal ESA, CESA, BGEPA, and the MBTA; consequences and penalties for violation or noncompliance with these laws and regulations and project permits; identification and value of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of mitigation measures. In the WEAP, the Mitigation Manager will detail construction timing in relation to habitat and species' life stage requirements and discuss project maps, showing areas of planned minimization and avoidance measures. A fact sheet prepared by the Mitigation Manager conveying this information will be prepared for distribution to the construction crews and to other individuals who enter the construction footprint. Upon completion of the WEAP training, construction crews will sign a form stating that they attended the training and understand and will comply with the information presented. Construction crews will be informed during the WEAP training that, to the extent possible, travel within the marked project site will be restricted to established roadbeds. Established roadbeds include all pre-existing and project-constructed unimproved, as well as improved roads.	Implementing Party: Contractor's Biologist and Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to maintain records of Worker Environmental Awareness training and provide written documentation to the Authority.	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
	Bio-MM#4: Prepare and Implement a Weed Control Plan. Prior to ground-disturbing activities, the Contractor will prepare and implement a Weed	Implementing Party: Contractor's Biologist	X	X			Prior to construction/monthly	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	<p>Control Plan to minimize or avoid the spread of weeds during ground-disturbing activities. The Weed Control Plan will address the following:</p> <ul style="list-style-type: none">Schedule for conducting noxious weed surveys to be conducted in coordination with the Biological Resources Management Plan (BRMP).Success criteria for noxious and invasive weed control as established by a qualified biologist. The success criteria will be linked to the HMMP for compensatory mitigation sites, and the standards for onsite work during construction will limit invasive species to less than 5% and non-native herbaceous species to less than 25%. If these success criteria have not been met by the end of the BRMP monitoring and implementation period, monitoring and control efforts will continue and remedial actions will be identified and implemented until success criteria are met. Based on monitoring results, additional or revised measures may be needed to ensure the introduction and spread of noxious weeds is not promoted by the construction and operation of the HST. <p>Provisions to ensure that the development of the Weed Control Plan will be coordinated with development of the Restoration and Revegetation Plan (RRP) so that the RRP incorporates measures to reduce the spread and establishment of noxious weeds and incorporates percent cover of noxious weeds into revegetation performance standards. Identify weed control treatments including permitted herbicides, and manual and mechanical methods for application. Restrict herbicide application from use in environmentally sensitive areas (ESAs).</p> <ul style="list-style-type: none">Determine timing of the weed control treatment for each plant species.Identify fire prevention measures. <p>The Contractor will implement the Weed Control Plan during the construction period and require that maintenance crews follow the guidelines in the Weed Control Plan during the project period. The Authority or its designee will appoint the responsible party during the operations period. A monthly memorandum will be prepared by the Project Biologist to document the progress of the Plan and its implementation.</p>	<p>Reporting Party/Monitoring Party: Project Biologist in coordination with the Authority</p>					memorandum to document the progress of the Weed Control Plan and implementation	
	<p>Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. During final design, and prior to construction, the Project Biologist will prepare the Biological Resources Management Plan (BRMP), and assemble the biological resources mitigation measures. In the BRMP, the Project Biologist will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also include habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The BRMP will form the parameters for the biology mitigation measures from this EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB, and CDFG permits.</p> <p>The BRMP will be prepared for all phases of project implementation, but may be exclusively prepared for each construction package.</p> <p>The goal of the BRMP is to assist the Project Biologist with an organized reporting tool to ensure the mitigation measures and terms and conditions are implemented in a timely manner and are reported on. These include all</p>	<p>Implementing Party: Contractor's Biologist</p> <p>Monitoring/Reporting Party: Project Biologist to verify completion of the BRMP and provide written documentation to the Authority.</p>	X				Following implementation and reporting schedule as established by agency permit conditions.	<p>Condition of Design/Build Contract.</p> <p>Biological Resources Management Plan (BRMP) and Construction plans</p>

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	<p>avoidance, minimization, repair, mitigation, and compensatory actions stated in the mitigation measures or terms and conditions from the permits referenced above. These measures and conditions are tracked through final design, implementation, and post-construction phases. Specific performance standards are habitat-based and are related to success of onsite or offsite repair of temporary impacts, or more permanent impacts that are compensated at an offsite location. Habitat based mitigation applies to compensatory mitigation or permittee-responsible mitigation for impacts on special-status plants, special-status wildlife, special-status plant communities, or jurisdictional waters and are generally addressed in the Bio-MM#58 as part of the HMMP. Performance standards are targets for determining the effectiveness of the mitigation and assessing the need for adaptive management (e.g., mitigation design or maintenance revisions). Success criteria are formal criteria that must be met after a specific timeframe to meet regulatory requirements of the permitting agencies. These are habitat-based performance standards that include consideration for the establishment of a species or habitat. Since species are nested within habitats, the performance standards are primarily based on vegetation, substrate, and hydrology conditions. The performance standards for the establishment of any temporary or permanent impacts on these resources are recognized in those resource categories, but are more specifically covered in the specific performance standards/guidelines shown in Bio-MM#56. The overarching goal is to neutralize the impacts with respect to species and habitat impacted. The BRMP will help the long-term perpetuation of biological resources within the temporarily disturbed areas, as well as protect adjacent targeted habitats. The BRMP will contain but not be limited to the following information:</p> <ul style="list-style-type: none">a. Specific measures for the protection of special-status species.b. Identification (on construction plans) of the locations and quantity of habitats to be avoided or removed, including locations where habitats are to be restored.c. Procedures for vegetation analyses of temporarily impacted habitats to approximate their relative composition, as well as procedures for site preparation, irrigation, planting, and maintenance. This information may be used to determine the requirements of the revegetation areas for both onsite temporary impacts and offsite compensatory sites.d. Sources of plant materials and methods of propagation.e. Specific parameters for determining the amount of replacement habitat for temporary disturbance areas identified consistent with mitigation ratios and permit conditions.f. Specification of parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and monitoring reports for temporary disturbance areas.g. Specification of performance standards for the re-established plant communities within the construction limits.h. Remedial measures, such as a form of adaptive management, to be taken if performance standards are not met.i. Methodologies and requirements for monitoring the restoration/replacement efforts, which will be a combination of qualitative and quantitative data consistent with mitigation measures and permit conditions.j. Measures to preserve topsoil and control erosion.							

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	k. Design of protective fencing around ESAs and ERAs and the construction staging areas. l. Specification of location and quantities of gallinaceous guzzlers (catch basin/artificial watering structures) if needed; specification of monitoring of water levels in guzzlers. m. Location of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees. n. Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within sensitive habitat areas. o. Specific construction monitoring programs for habitats of concern and special-status species, as needed. p. Specific measures for the protection of vernal pool habitat and riparian areas. These measures may include but are not limited to: erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements. q. Provisions for biological monitoring during ground-disturbing activities to confirm compliance and success of protective measures. The monitoring procedures will: (1) identify specific locations of wildlife habitat and sensitive species to be monitored, (2) identify the frequency of monitoring and the monitoring methodology (for each habitat and sensitive species to be monitored), (3) list required qualifications of biological monitor(s), and (4) identify reporting requirements.							
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. During final design, the Contractor's Biologist will prepare a restoration and revegetation plan (RRP) for upland communities and verified by the Project Biologist. This is a complement for site restoration in addition to the temporary effects for riparian plant communities (Bio-MM#15) and for jurisdictional waters (Bio-MM#43). In the RRP, address impacts on habitat subject to temporary ground disturbances that will require decompaction or regrading, if appropriate. The standards for onsite work during construction will limit invasive species to less than 5% and nonnative herbaceous species to less than 25% unless otherwise called out in the final approved seed mix. The Project Biologist will approve the seed mix. During ground-disturbing activities, the Contractor will implement the RRP in temporarily disturbed areas. The Project Biologist will prepare and submit compliance reports to document implementation. The RRP compliance reports will be prepared and submitted to the Mitigation Manager.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). Prior to ground-disturbing activities, to the extent practicable, the Project Biologist will verify that environmentally sensitive areas (ESAs) and environmentally restricted areas (ERAs) are delineated as appropriate. ESAs are areas within the construction zones containing suitable habitat for special-status species and habitats of concern that may allow construction activities, but have restrictions based on the presence of special-status species or habitats of concern at the time of construction. ERAs are areas outside the construction footprint that must be protected in-place during all construction activities. Prior to ground-disturbing activities, the Contractor's Biologist will include all ESAs and ERAs on final construction plans (including grading and landscape plans). Prepare, review and approve the map of all ESAs and ERAs on the design drawings and work to update the map as necessary. Prior to ground-disturbing activities, the Contractor will mark ESAs and ERAs with high visibility temporary fencing to prevent encroachment of construction personnel and equipment onto sensitive areas. Designate the two categories, ESA and ERA, differently in the field (e.g., different colored flagging/fencing). Use sub-meter accurate GPS equipment to delineate all ESAs and ERAs. Remove ESA and ERA fencing when construction is complete or the resource has been cleared according to agency permit conditions and construction drawings and specifications. The Project Biologist will submit memoranda regarding the field delineation of all ESAs/ERAs to the Mitigation Manager. These areas will receive ongoing monitoring during site preparation and construction activities.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. Prior to ground-disturbing activities, the Contractor will locate staging areas for construction equipment outside sensitive biological resources including habitat for special-status species, habitats of concern(e.g., wetlands, waters of the U.S., riparian communities), and wildlife movement corridors, to the maximum extent possible. The Project Biologist will submit memoranda to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. During ground-disturbing activities, the Project Biologist will verify that plastic mono-filament netting (erosion-control matting) or similar material is not used in erosion control materials; substitutes include coconut hair matting or tackified hydroseeding compounds. The Project Biologist will submit memoranda to the Mitigation Manager documenting compliance monthly, or as appropriate, through the life of the project construction.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. During ground-disturbing activities, the Contractor will restrict project-related vehicle traffic, within the construction area, to established roads, construction areas, and other designated areas. Establish vehicle traffic locations disturbed by previous activities to prevent further adverse effects. Observe a 20 mph speed limit for construction areas with potential special-status species habitat. Clearly flag and mark access routes and prohibit off-road traffic. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#11: Entrapment Prevention. The Contractor's biologist will cover all excavated, steep-sided holes or trenches, more than 8 inches deep, at the close of each working day with plywood or similar materials, or provide a minimum of one escape ramp per 10 feet of trenching constructed of earth fill. The Contractor's Biologist will thoroughly inspect such holes or trenches for trapped animals before leaving the construction site each day. The Contractor's Biologist will screen all culverts, or similar enclosed structures, with a diameter of 4 inches or greater to prevent use by wildlife. The Contractor's Biologist will ensure that cleared and stored material at the construction site for common and special-status wildlife species before the material is subsequently used or moved. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During construction/submit weekly reports.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. During ground-disturbing activities, the Project Biologist or Biological Monitor will halt work in the event that a special-status wildlife species gains access to the construction footprint. This work stoppage will be coordinated with the resident engineer and/or the Authority or its designee. At this direction the Contractor will suspend ground-disturbing activities in the immediate construction area that could reasonably result in a "take" of special-status wildlife species. The Contractor will continue the suspension until the individual leaves voluntarily, is relocated to a release area using USFWS- and/or CDFG-approved handling techniques and relocation methods, or as required by USFWS or CDFG. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist in coordination with the Authority Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. The Contractor's Biologist in coordination with the Project Biologist and Mitigation Manager will notify the USFWS and/or CDFG immediately in the case of an accidental death or injury to a federal or state listed species during project-related activities. The Authority or its designee will be notified prior to the notification to the agencies. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. After each construction period is completed, the Project Biologist will submit post-construction compliance reports consistent with the appropriate agency (e.g., UFSWS, NMFS and CDFG) protocols, including compliance with resource agency permits (i.e., Section 7 of FESA, Section 2081 of CESA and Section 401 and 404 of FCWA and 1600 of Fish and Game Code). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance. The frequency of the memorandum compilation and submission will be consistent with regulatory compliance permits.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract Weed Control Plan
Bio#1:	Bio-MM#5: Prepare and Implement a Biological Resources	Implementing Party: Project Biologist	X				Following implementation	Condition of Design/Build Contract.

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			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Construction of the HST alternatives would introduce noxious weeds.	Management Plan. See description above.	Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.					and reporting schedule as established by agency permit conditions.	Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract Weed Control Plan
Bio#2: Construction of the HST alternatives would disturb Great Valley mixed riparian forest and other riparian habitat.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. During post-construction, the Contractor's Biologist will revegetate all disturbed riparian areas using appropriate plants and seed mixes. The Project Biologist will monitor restoration activities consistent with provisions in the Habitat Mitigation and Monitoring Plan (HMMP). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#3: Prepare and Implement a Worker Environmental	Implementing Party: Mitigation Manager	X	X			Training of all	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	Awareness Program. See description above.	Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to the Authority					crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	
Bio#3: Construction of the HST alternatives would disturb suitable habitat that has potential to support special-status plant species.	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#18: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species. The Contractor's Biologist will prepare a plan prior to ground-disturbing activities to address monitoring, salvage, relocation, and propagation of special-status plant species.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist	X		X		Pre-construction and prior to ground-disturbing activities. Follow reporting requirements as	Condition of Design/Build Contract

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			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	The plan will be submitted to the Project Biologist for concurrence. The relocation or propagation of plants and seed will be performed at a suitable mitigation site, as appropriate per species. Documentation will include provisions that address the techniques, location, and procedures required for the successful establishment of the plant populations. The plan will include provisions for performance that address survivability requirements, maintenance, monitoring, implementation, and the annual reporting requirements. Permit conditions issued by the appropriate resource agencies (e.g., USFWS, CDFG) will guide the development of the plan and performance standards. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Monitoring Party: Mitigation Manager in coordination with the Authority					established by regulatory compliance permits.	
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. Prior to ground-disturbing activities, the Project Biologist will conduct pre-construction, non-protocol surveys in seasonally inundated habitats (seasonal wetland, noninundated wetlands) within the construction footprint. The Project Biologist will conduct general aquatic surveys at a suitable interval after the first significant storm event of the rainy season (October 15 to June 1), as feasible prior to ground-disturbing activities. The sampling is an assessment of the hydrological, biological and ecological conditions of each seasonal wetland and open waters. This assessment will determine the quality and suitability of seasonal wetlands for special-status species (e.g., vernal pool branchiopods, western spadefoot toads, and California tiger salamanders) and later assist in determining which materials (e.g., soils, viable plant seeds, vernal pool cysts) may be collected. The sampling is an assessment that will be useful in understanding the species present and will help guide the implementation of performance standards to be consistent with Bio-MM#20: Implement and Monitor Vernal Pool Protection, for vernal pool special-status species (e.g., vernal pool branchiopods, western spadefoot toads, and California tiger salamanders).The Project Biologist will submit a report within 1 month of completing the field work and submit to the Mitigation Manager and Authority or its designee. The report will provide the documentation and the results of the sampling, including the results of the data collected and compared with the performance standards. All project construction personnel will be trained to recognize and avoid special-status species and their habitat (Bio-MM#3). The Weed Control Plan prepared and implemented (Bio-MM#4) will ensure that noxious weeds to not invade areas disturbed by project construction activities. The Plan will have specific success criteria in terms of future presence of invasive and non-native plant species in restored areas. Implementation of The Weed Control Plan will be integrated with the RRP (Bio-MM#6), and will be implemented and reported as part of the overall BRMP (Bio-MM#5). Prior to project construction ESAs and ERAs, which will include riparian areas adjacent to project construction, will be identified and delineated (Bio-MM#7) to prevent impacts to sensitive areas outside the approved project footprint. Construction equipment will be staged in non-sensitive areas (Bio-MM#8). During project construction vehicle routes and speeds will be controlled to minimize impact on sensitive habitats (Bio-MM#10). Riparian areas temporarily impacted through construction will be through a long-term restoration and monitoring program (Bio-MM#15). A plan will be implemented within the construction footprint and other areas potentially affected by construction activity to guide the salvage, relocation, and propagation	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	special-status plant species (Bio-MM#18). This examination will include sampling and assessment of vernal pools (Bio-MM#19), which will provide baseline data necessary for formulation of performance standards necessary for subsequent mitigation of impacts to vernal pools and other aquatic resources. All of these activities will be documented though post-construction compliance reports (Bio-MM#14).							
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#4: Construction of the HST alternatives would disturb suitable habitat that has potential to support vernal pool branchiopods	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

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	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. For seasonal avoidance of special-status vernal pool branchiopods and vernal pool-dependent species (e.g., California tiger salamander), the Contractor will not work within 250 feet of aquatic habitats suitable for these species (e.g., vernal pools and other seasonal wetlands) from October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Ground-disturbing activities may begin once the habitat is no longer inundated for the season. If any work remains to be completed after October 15, exclusion fencing and erosion control measures will be placed at the vernal pools and other seasonal wetlands by the Contractor's Biologist. The fencing will act as a buffer between ground-disturbing activities and the vernal pools and other seasonal wetlands as determined through consultations with USFWS/USACE. The Project Biologist will document compliance through a memorandum to the Mitigation Manager during the establishment of the fencing activities.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. If temporary impacts can be avoided, the vernal pool(s) will be protected by erecting exclusion fencing. The Contractor's Biologist, under the supervision of the Project Biologist, will erect and maintain the exclusion fencing. For temporary impacts on vernal pools and other seasonal wetlands that cannot be avoided, the Contractor's Biologist will apply geotextile fabric and a layer of gravel over the affected vernal pool(s) prior to ground-disturbing activities to protect the contours in cases where the area may be excluded from the permanent construction footprint. The Contractor will implement this measure within temporary impact areas within the construction footprint. Resource agency consultations with the USFWS/USACE will occur as needed and based on permit conditions. <ul style="list-style-type: none">If temporary impacts occur over a full wet-dry season cycle and the vernal pool(s) cannot be avoided, the vernal pool(s) will be protected by erecting exclusion fencing by the Contractor's Biologist.If temporary impacts occur within the dry season (approximately June 1 to October 15) and the vernal pool(s) cannot be fenced, geotextile fabric and rinsed gravel should be placed within and cover the vernal pool(s) to minimize damage to the soils. The Contractor's Biologist in coordination with the Project Biologist will collect a representative sampling of soils from the vernal pool(s) prior to initiating ground-disturbing activities within	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	vernal pools. The representative soil sample(s) will contain viable plant seeds and vernal pool branchiopod cysts to be preserved from the vernal pool(s). These samples may be incorporated into other vernal pools, as applicable, with USFWS and/or CDFG consultation. If temporary impacts take more than two full wet-dry season cycles, the above-described soil storage and/or offsite mitigation will be implemented.							
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. During or post-construction, the Contractor will restore disturbed jurisdictional waters using stockpiled and segregated soils. The Contractor's Biologist will conduct revegetation using appropriate plants and seed mixes, and conduct maintenance monitoring consistent with the provisions in the HMMP. The Project Biologist will document compliance with memorandum submitted to the Mitigation Manager.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. During ground-disturbing activities, the Project Biological Monitor will conduct monitoring within jurisdictional waters, including monitoring of the installation of protective devices (silt fencing, sandbags, fencing, etc.), installation and/or removal of creek crossing fill, construction of access roads, vegetation removal, and other associated construction activities. The Project Biological Monitor will conduct biological monitoring to document adherence to habitat avoidance and minimization measures addressed in the project mitigation measures and as listed in the USFWS, CDFG, SWRCB, and USACE permits conditions. The Project Biological Monitor will report and document compliance consistent with requirements in the permitting documents, including frequency and timing and submittals. All project construction personnel will be trained to recognize and avoid special-status species and their habitat (Bio-MM#3). The Weed Control Plan prepared and implemented (Bio-MM#4) will ensure that noxious weeds to not invade areas disturbed by project construction activities. The Plan will have specific success criteria in terms of future presence of invasive and non-native plant species in restored areas. Implementation of The Weed Control Plan will be integrated with the RRP (Bio-MM#6), and will be implemented and reported as part of the overall BRMP (Bio-MM#5). Prior to project construction ESAs and ERAs, which will include riparian areas adjacent to project construction, will be identified and delineated (Bio-MM#7) to prevent impacts to sensitive areas outside the approved project footprint. Construction equipment will be staged in non-sensitive areas (Bio-MM#8). During project construction vehicle routes and speeds will be controlled to minimize impact on sensitive habitats (Bio-MM#10). During construction, biological monitors will be empowered to temporarily halt construction activity to prevent impacts to observed special-status species (Bio-MM#12). Construction activity will be restricted in the vicinity of vernal pools during the period in which they are inundated (Bio-MM#19). In those instances where work must occur in proximity to pools, fencing and sedimentation protection will be installed. In instances where temporary impacts to vernal pools are unavoidable, soil from the pool will be collected to salvage viable plant seeds and vernal pool branchiopod cysts for use in subsequent mitigation (Bio-MM#20). Temporarily impacted wetlands will be restored using salvaged, stockpiled soils and appropriate seed mixes. Construction activity in wetland areas will be monitored to ensure that measures are taken to prevent impacts to adjacent wetlands and to assure adherence to relevant conditions of Resource Agency-	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	issued permits (Bio-MM#44). All of these activities will be documented though post-construction compliance reports (Bio-MM#14).							
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#5: Construction of the HST alternatives would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: ‘Take’ Notification and Reporting. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. Prior to and during ground-disturbing activities, the Contractor will implement the avoidance and minimization measures. These measures include establishing and maintaining appropriate buffer areas around elderberry plants, surveying for beetle boreholes in affected shrubs, restricting the use of chemicals that might harm beetles, and mowing. After ground-disturbing activities are completed, restore any damage to buffer areas containing elderberry shrubs. In areas where encroachment on the 100-foot buffer has been approved by USFWS, the Contractor will provide a minimum setback of at least 20 feet from the dripline of each Mexican elderberry plant. In buffer areas, ground-disturbing activities should be minimized, and any damaged area should be restored following construction by the Contractor. The Contractor will erect signage every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a federally threatened species, and must not be disturbed. This species is protected by the Federal ESA of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained by the Contractor for the duration of ground-disturbing activities. To prevent encroachment, these buffer areas must continue to be protected per USFWS protocol (after ground-disturbing activities) from adverse effects of the project during the construction phase. The Contractor will include protective measures such as fencing, signage, weeding, and trash removal to enforce the protection of the valley elderberry longhorn beetle and its associated habitat. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis or at other appropriate intervals.	Implementing Party: Contractor’s Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written	X	X			Training of all crew/construction personnel prior to start of	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above.	documentation to the Authority					construction. Provide weekly/monthly reporting as required by permit conditions.	
Bio#6: Construction of the HST alternatives would disturb California tiger salamander habitat.	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		the Authority						
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: ‘Take’ Notification and Reporting. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) 1600 Streambed Alteration Agreement.
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above.	Implementing Party: Contractor’s Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. See description above.	Implementing Party: Contractor’s Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							Follow reporting requirements as established by regulatory compliance permits.	
	Bio-MM#23: Translocation of California Tiger Salamanders. Prior to ground-disturbing activities, the Project Biologist or designee will conduct a pre-construction survey and relocate any California tiger salamanders from within the construction footprint in accordance with the <i>Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander</i> (USFWS 2003). The relocation will occur for any individuals within the construction footprint per coordination with the USFWS. The Project Biologist will conduct pit trapping. The Contractor's Biologist will work in coordination with the Project Biologist when installing amphibian exclusion fencing specified in Bio-MM#24. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis or at other appropriate intervals.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander
	Bio-MM#24: Erect Amphibian Exclusion Fencing. The Contractor's Biologist will install exclusion barriers (i.e. silt fences) to influence the movement of California tiger salamander, including other amphibian species, within impacted areas. They can be used to both exclude California tiger salamander, including other amphibian species, from ground-disturbing areas as well as to guide breeding adults toward pre-identified mitigation ponds. Exclusion fencing will be maintained by the Contractor throughout the California tiger salamander's entire active period (November to April) or until all ground-disturbing activities are completed, whichever occurs first. Exclusion fencing must be trenched into the soil at least 4 inches in depth with the soil compacted against both sides of the fence for its entire length to prevent amphibians from passing under the fence. Barriers must be inspected by the Contractor's Biologist at least twice weekly on non-consecutive days and after any significant rain event (defined as a 0.75 inch downpour or 1.5 inches of rain in any 24-hour period). Barriers will be installed by the Contractor with turn-arounds at any access openings needed in the fencing, in order to redirect amphibians away from openings. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#7: Construction of the HST alternatives would disturb western spadefoot toad habitat.	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#11: Entrapment Prevention. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) 1600 Streambed Alteration Agreement.
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection.	Implementing Party: Contractor's Biologist	X	X	X		Prior to construction/Post	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above.	Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority					Construction monitoring and reporting as determined by regulatory agency permit conditions.	
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#24: Erect Amphibian Exclusion Fencing. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander
	Bio-MM#25: Conduct Emergence and Larval Surveys for Western Spadefoot Toad. The Project Biologist or designee (qualified herpetologist) will conduct pre-construction emergence and larval surveys for western spadefoot toad during the fall and winter rainy season. Emergence surveys will be conducted within the appropriate time period(s) after precipitation events as evaluated by a qualified herpetologist and will be partially in tandem with California tiger salamander surveys. Potential breeding depressions, including vernal pools, will be surveyed for western spadefoot toad larvae concurrently with special-status vernal pool branchiopod and California tiger salamander pre-construction surveys. Adults found within the construction footprint during emergence surveys will be relocated to an appropriate area adjacent to another pool suitable for breeding. Pre-construction surveys will help identify the proper implementation of mitigation measures, identify state and federal permit requirements, and inform the accurate implementation of mitigation requirements. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance after surveys are complete.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#46: Install Wildlife Fencing. Prior to operation of the HST, the Contractor's Biologist will install free-ranging mammal-proof fencing along portions of the proposed project consistent with final design. The Project Biologist will verify that the installation is consistent with the designated terms and conditions in the applicable permits. The Project Biologist will prepare and	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority			X		Prior to operation of the HST	Submit a memorandum documenting compliance.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	submit a memorandum to the Mitigation Manager documenting compliance.							
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#8: Construction of the HST alternatives would disturb habitat that supports the western pond turtle.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							stoppage and subsequent action.	
	Bio-MM#13: ‘Take’ Notification and Reporting. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#26: Conduct Western Pond Turtle Pre-Construction Surveys and Relocation. Prior to ground-disturbing activities, conduct pre-construction surveys for western pond turtles to determine the presence or absence of western pond turtles within the construction footprint. If western pond turtles are found within the construction footprint, conduct daily clearance surveys prior to the initiation of any construction activities. If a western pond turtle nest will be affected by ground-disturbing activities, relocate the eggs according to relocation protocol coordinated with CDFG for all life stages of western pond turtles. Relocate hatchling and adult turtles outside of the construction footprint in suitable habitat. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Clearance surveys during construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#27: Conduct Western Pond Turtle Monitoring. During ground-disturbing activities, the Project Biologist will observe all construction activities within habitat that supports populations of western pond turtles. If ESAs are deemed necessary, the Project Biologist will conduct a clearance survey for western pond turtles prior to the time the fence is installed. If necessary, conduct daily clearance surveys prior to construction. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X			During ground-disturbing activities and Daily clearance surveys during construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#28: Implement Western Pond Turtle Avoidance and Relocation. Prior to ground-disturbing activities, if a western pond turtle nesting area is present and will be affected by ground-disturbing activities as determined by the Project Biologist, the Contractor will avoid western pond turtle nesting areas. If avoidance is not feasible, as determined by the Authority or its designee, the Project Biologist will coordinate with CDFG to identify where to relocate western pond turtles. The Project Biologist will coordinate specific trapping and relocation protocols with CDFG for adults, hatchlings, and eggs prior to ground-disturbing activities. The Contractor will not move eggs or hatchlings without prior coordination with the Project Biologist and concurrence from CDFG. The Project Biologist will submit a	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities and during ground-disturbing activities and construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	memorandum to the Mitigation Manager documenting compliance on a weekly basis or as determined appropriate pending construction progress.							
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio# 10: Construction of the HST alternatives would disturb nesting Swainson's hawk.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority.	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							action.	
	Bio-MM#13: ‘Take’ Notification and Reporting. See description above.	Implementing Party: Contractor’s Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#29: Conduct Pre-Construction Surveys and Monitoring for Raptors. Prior to ground-disturbing activities, the Project Biologist or designee will conduct pre-construction surveys for nesting raptors if construction and habitat removal activities are scheduled to occur during the breeding season (February 1 to August 15). The Project Biologist or designee will conduct surveys in areas within 300 feet of the construction footprint. Modify the required survey dates based on local conditions. If breeding raptors with active nests are found, establish a 300-foot buffer around the nest and phase construction activities within the buffer(s) until the young have fledged from the nest or the nest is abandoned. Approve construction activities within the buffer area, pending site conditions that will not jeopardize the nest. The Project biologist will conduct pre-construction surveys for bald and golden eagle nests within ¼ mile of the construction footprint. If nesting bald or golden eagles are identified, the Contractor’s Biologist in coordination with the Project Biologist will establish a 1,000-foot buffer area. The Project Biologist or designee will adjust the 1,000-foot buffer as needed to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the USFWS or CDFG, as appropriate. The Project Biologist or designee will conduct regular monitoring of the nest to determine success/failure and to confirm that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The Project Biologist or designee will document the results of the surveys and the ongoing monitoring, and provide a copy of the monitoring reports for impact areas to the respective agencies. The Project Biologist or designee will approve ground-disturbing activities within the buffer area, pending site conditions that will not jeopardize the nest. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys, prior to ground-disturbing activities, and during construction	Condition of Design/Build Contract
	Bio-MM#31: Raptor Protection on Power Lines. During final design, the Contractor will verify that the catenary system and masts are designed to be raptor-safe, in accordance with <i>the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006</i> (Avian Power Line Interaction Committee 2006). The Project Biologist will check the final design drawings and submit a memorandum to the Mitigation Manager documenting compliance	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Final design, completed prior to construction.	Condition of Design/Build Contract
	Bio-MM#32: Conduct Pre-Construction Surveys for Swainson’s Hawks. The Project Biologist or designee will conduct pre-construction surveys for Swainson’s hawks during the nesting season (March 1 through September 15) within the construction footprint and within a 0.5-mile buffer. The Project	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with	X				Pre-construction surveys at least 30 days prior to ground-disturbing activities and construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Biologist or designee will conduct the pre-construction nest surveys at least 30 days prior to ground-disturbing activities and phase with project construction. The pre-construction surveys will determine the status (i.e., active, inactive) of the nest and then will be used to set up nest avoidance strategies (Bio-MM#33). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance with the measure.	the Authority						
	Bio-MM#33: Swainson’s Hawk Nest Avoidance. If active Swainson’s hawk nests (defined as a nest used one or more times in the last 5 years) are found within 0.5 mile of the construction footprint during the nesting season (March 1 to September 15), the Contractor’s Biologist will implement buffers restricting construction activities, following CDFG’s <i>Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks (Buteo swainsoni) in the Central Valley of California</i> (CDFG 1994). Adjustments to the buffer(s) will require prior approval by CDFG as coordinated by the Project Biologist. The buffers and nest condition will then be monitored (see Bio-MM#34). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Nesting season (March 1 – September 15)	Condition of Design/Build Contract
	Bio-MM#34: Monitor Removal of Nest Trees for Swainson’s Hawks. Prior to ground-disturbing activities, the Project Biologist or designee will monitor nest trees for Swainson’s hawks in the construction footprint that are not removed. If a nest tree for a Swainson’s hawk must be removed, the Contractor will obtain a Management Authorization (including conditions to offset the loss of the nest tree) from the CDFG, as described in CDFG’s Staff Reporting Regarding Mitigation for Impacts to Swainson’s Hawks (Buteo swainsoni) in the Central Valley of California (CDFG 1994). The Management Authorization will specify the tree removal period, generally between October 1 and February 1. If ground-disturbing activities or other project-related activities may cause nest abandonment by a Swainson’s hawk or forced fledging within the specified buffer area, monitoring of the nest site (funded by the Authority) by the Project Biologist will be required to determine if the nest is abandoned. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis during the appropriate season.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities, during construction.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#11: Construction of the HST alternatives would disturb breeding birds, including raptors.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor’s Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		the Authority					permit conditions	
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#29: Conduct Pre-Construction Surveys and Monitoring for Raptors. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys, prior to ground-disturbing activities, and during construction	Condition of Design/Build Contract
	Bio-MM#30: Conduct Pre-Construction Surveys and Delineate Active Nest Exclusion Areas For Other Breeding Birds. In the event active bird nests are encountered during the pre-construction survey, the Project Biologist or designee will determine the nest avoidance buffer zones as appropriate. The Project Biologist or designee will coordinate with the Contractor's Biologist to establish the suitable buffers consistent with the intent of the MBTA and as determined by the Project Biologist. The Project Biologist or designee will delineate nest avoidance buffers established for ground nesting birds in a manner that does not create predatory bird perch points in close proximity (150 feet) to the active nest site. The Project Biological Monitor will monitor active bird nests weekly or more frequently pending status of nest and status of fledgling development. The Contractor's Biologist will maintain the nest avoidance buffer zone until nestlings have fledged or the nest is abandoned. The Project Biologist	Implementing Party: Contractor's Biologist, Project Biologist, Project Biological Monitor, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Pre-construction surveys and during construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	will submit a memorandum to the Mitigation Manager documenting compliance.							
	Bio-MM#31: Raptor Protection on Power Lines. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Final design, completed prior to construction.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#12: Construction of the HST alternatives would disturb or cause the loss of burrowing owls and their habitat.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#35: Conduct Pre-Construction Surveys for Burrowing Owls. Prior to ground-disturbing activities, the Project Biologist or designee will conduct pre-construction surveys in accordance with CDFG's <i>Staff Report on</i>	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with	X	X			Prior to ground-disturbing activities, the winter (December 1 through	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<i>Burrowing Owl Mitigation</i> (CDFG 1995). The Project Biologist or designee will conduct these surveys at appropriate timeframes within suitable habitat located in the construction footprint and a 500-foot buffer. Results of the surveys will be used to inform Bio-MM#36.. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis.	the Authority					January 31) and breeding season (April 15 through July 15)	
	Bio-MM#36: Burrowing Owl Avoidance and Minimization. Implement burrowing owl avoidance and minimization measures following CDFG's <i>Staff Report on Burrowing Owl Mitigation</i> (CDFG 1995). <ul style="list-style-type: none">The Contractor will not disturb occupied burrowing owl burrows during the nesting season (February 1 through August 31) unless it is verified that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and are capable of independent survival as determined by the Project Biologist or designee. Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction.Unless otherwise authorized by CDFG, the Contractor's Biologist will establish a 250-foot buffer (as an environmentally sensitive area) between the construction work area and nesting burrowing owls during the nesting season. The Contractor will maintain this protected area until August 31 or a time set at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently.Unless otherwise authorized by CDFG, the Contractor's Biologist will establish a 160-foot buffer (as an environmentally sensitive area) between the construction work area and occupied burrows during the non-breeding season (September 1 through January 31). The Contractor will maintain this protected area until January 31 or at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently. If burrowing owls must be moved away from the construction footprint, the Contractor's Biologist will undertake the passive relocation measures in accordance with CDFG's (1995) guidelines. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance on a weekly basis.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Preconstruction burrow identification, during construction.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio# 13: Construction of the HST alternatives would disturb breeding or nonbreeding bats.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and	Implementing Party: Contractor's Biologist, Project	X	X			Prior to construction/Post	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Environmentally Restricted Areas (on plans and in-field). See description above.	Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority					construction. Follow reporting requirements as established by agency permit conditions	
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#37: Conduct Pre-Construction Surveys for Special-Status Bat Species. Prior to any ground-disturbing activities, the Project Biological Monitor or designee will conduct a visual and acoustic pre-construction survey for roosting bats. Include a minimum of one day and one evening in the visual pre-construction survey. The Project Biologist, in coordination with the Mitigation Manager, will contact CDFG if any hibernation roosts or active nurseries are identified within the construction footprint, as appropriate. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Project Biological Monitor, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-construction surveys, prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#38: Bat Avoidance and Relocation. During ground-disturbing activities, the Contractor will avoid active hibernation roosts. If avoidance of the hibernation roost is not feasible, the Contractor's Biologist will prepare a relocation plan and coordinate the construction of an alternative bat roost with CDFG. The Contractor will implement the Bat Roost Relocation Plan prior to the commencement of construction activities. Remove roosts with approval from CDFG before hibernation begins (October 31), or after young are flying (July 31), using exclusion and deterrence techniques described in Bio-MM#39 below. The timeline to remove vacated roosts is between August 1 and October 31. All effort to avoid disturbance to maternity roosts will be made during construction activities. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#39: Bat Exclusion and Deterrence. During ground-disturbing activities, if non-breeding or non-hibernating individuals or groups of bats are found within the construction footprint, the bats will be safely excluded by either opening the roosting area to change lighting and airflow conditions, or by installing one-way doors, or other appropriate methods specified by CDFG. The Contractor will leave the roost undisturbed by project-related activities for a minimum of one week after implementing exclusion and/or eviction activities. The Contractor will not implement exclusion measures to evict bats from established maternity roosts or occupied hibernation roosts. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		During ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#14: Construction of the HST alternatives would disturb American badger dens.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#40: Conduct Pre-Construction Surveys for American Badger. Prior to ground-disturbing activities, the Project Biologist or designee will conduct pre-construction surveys for American badger den sites within suitable habitats in the construction footprint. The Project Biologist will conduct these surveys no more than 30 days before the start of ground-disturbing activities and phase with project build out. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#41: American Badger Avoidance. The Contractor's Biologist will establish a 50-foot buffer around occupied American badger dens. The Contractor will establish a 200-foot buffer around badger maternity dens through the pup-rearing season (February 15 through July 1). Adjustments to the buffer(s) will require prior approval by CDFG as coordinated by the Project Biologist. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction per approval by CDFG	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#15: Construction of the HST alternatives would disturb San Joaquin kit fox dens.	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above.	Implementing Party: Project Biologist or Project Biological Monitor Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above.	Implementing Party: Contractor's Biologist, Project Biologist, Mitigation Manager Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports.	Implementing Party: Project Biologist			X		Post-construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above.	Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority						
	Bio-MM#42: Conduct Pre-Construction Surveys for San Joaquin Kit Fox. The USFWS' <i>Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance</i> (USFWS 1999b) will be implemented as follows for construction related impacts. Prior to the start of ground-disturbing activities, the Project Biologist or designee will conduct pre-construction surveys in accordance with the USFWS' <i>San Joaquin Kit Fox Survey Protocol for the Northern Range</i> (USFWS 1999c). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Pre-construction surveys and prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#43: Minimize Impacts on San Joaquin Kit Fox. The Contractor's Biologist will Implement USFWS' Standard Measures for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999b) to minimize ground disturbance-related impacts on this species. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys and prior to ground-disturbing activities	Condition of Design/Build Contract USFWS' Standard Measures for Protection of the San Joaquin Kit Fox
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#16: Construction of the HST alternatives would temporarily convert special-status plant communities (e.g., Great Valley mixed riparian forest, coastal and valley freshwater marsh, vernal pools).	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction and Construction	Final construction plans (including grading and landscape plans) and Memorandum regarding the field delineation of all ESAs/ERAs
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with		X	X		During ground-disturbing activities and Construction Follow reporting as	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		the Authority					determined by regulatory agency permit conditions.	
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above.	Implementing Party: Mitigation Manager Monitoring/Reporting Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#17: Construction of the HST alternatives would have indirect impacts on jurisdictional waters.	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above.	Implementing Party: Project Biologist Monitoring/Reporting Party: Mitigation Manager to verify completion of the BRMP and provide written documentation to Authority	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field) See description above..	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction and Construction	Memorandum documenting compliance
	Bio-MM#8: Equipment Staging Areas. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
								Streambed Alteration Agreement.
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
Bio#21: Construction of the HST alternatives would disturb Camp Pashayan	Bio-MM#17: Conduct Pre-Construction Surveys for Special-Status Plant Species. The Project Biologist will conduct pre-construction surveys for special-status plant species in suitable habitat areas, subject to ground-disturbing activities. The surveys will be conducted in the appropriate season prior to ground-disturbing activities for salvage and relocation activities. The	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Pre-construction and Prior to ground-disturbing activities	Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
(San Joaquin River Ecological Reserve).	Project Biologist will use the results of the Special-Status Plants Survey Report (prepared as part of the Biological Resources Technical Report), including mapping of locations of special-status plant species, to determine focused locations for the pre-construction surveys, as appropriate. The Project Biologist will work with the Contractor's Biologist to mark and avoid locations of all special-status plant species observed where feasible or incorporate the species into the relocation/compensation program defined in Bio-MM#50: Compensate for Impacts on Special-Status Plant Species. Prior to ground-disturbing activities, the Contractor will protect any populations of special-status plant species identified during the surveys within 100 feet of the construction footprint as ERAs. As appropriate, the Contractor's Biologist will update the special-status or habitats of concern mapping within the construction limits, based upon resource agency permits. The Contractor's Biologist will determine the locations of special-status plant species on construction drawings and identified as ESAs within the construction footprint. Plant populations within 100 feet of the construction limits will be fenced as ERAs by the Contractor's Biologist. Terms and conditions from Section 7 and Section 2081 agreements will be incorporated as appropriate. The Project Biologist will provide verification and report through memorandum to the Mitigation Manager.							
	Bio-MM#18: Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special-Status Plant Species. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X		X		Pre-construction and prior to ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	PK-MM#4: Acquire Park Property for Camp Pashayan. Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	Implementing Party: Contractor's Biologist and Authority Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in Bio-IMPACT#16).	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. The Authority will compensate for permanent impacts on Great Valley mixed riparian forest and other riparian habitats, determined in consultation with the appropriate agencies (e.g., CDFG), by restoring nearby areas to suitable habitat through permittee-responsible mitigation and/or by purchasing credits in a mitigation bank. Other relevant regulatory permits addressing riparian impacts include the CDFG 1600 Streambed Alteration Agreement, the USACE Section 404 Permit, and the SWRCB 401 Permit. The HMMP will provide the planning details as referenced in Bio-MM#58. Bio-MM#56 provides documentation and reporting requirements. Compensation will be based on the following ratios (acres of mitigation to acres of impact): <ul style="list-style-type: none">Great Valley Mixed Riparian Forest: 2:1Other Riparian: 2:1	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. The Authority or its designee, prior to final design, will conduct a jurisdictional delineation, documenting jurisdictional waters and state streambeds consistent with USACE, SWRCB, and CDFG guidance. As part of the delineation, determine the functions and values of the jurisdictional waters using accepted methods such as the CRAM so that the functions and values have been replaced and that no net loss of jurisdictional waters and state streambed values occurs. Develop habitat replacement guidelines to identify and quantify habitats that are to be removed and identify the locations for restoring or relocating habitats. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. As part of the USFWS, USACE, SWRCB, and CDFG permit applications and prior to ground-disturbing activities, the Authority or its designee will prepare an HMMP to mitigate for temporary and permanent impacts on jurisdictional waters and state streambeds. The HMMP will detail performance standards, including percent cover of native species, survivability, canopy cover requirements, wildlife utilization, the acreage basis, restoration ratios, and the combination of onsite and/or offsite mitigation. Preference shall be given to conduct the mitigation within the same watershed where the impact occurs. The Authority or its designee will conduct work with the USACE, SWQCB, and CDFG to develop appropriate avoidance, minimization, mitigation, and monitoring measures to be incorporated into the HMMP. The intent of the HMMP is to mitigate for the lost functions and values of impacts on jurisdictional waters and state streambeds consistent with resource agency requirements and conditions presented in Sections 404 and 401 of the CWA and Section 1600 of the CFGC. It is also anticipated that since listed species such as California tiger salamander, colusa grass, and vernal pool branchiopods are nested within these habitats, the HMMP will also serve to mitigate for listed species through Section 7 of ESA and CESA 2081. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance. In the HMMP, the applicant or its designee shall incorporate the following standard requirements consistent with USACE, SWRCB, and CDFG guidelines: <ul style="list-style-type: none">• Description of the project impact/site.• Goal(s) (i.e., functions and values) of the compensatory mitigation project.• Description of the proposed compensatory mitigation site.• Implementation plan for the proposed compensatory mitigation site.• Maintenance activities during the monitoring period.• Monitoring plan for the compensatory mitigation site.• Completion of compensatory mitigation.• Contingency measures. Additionally, the following will be included at a minimum for the implementation plan: <ul style="list-style-type: none">• Site analysis for appropriate soils and hydrology.• Site preparation specifications based on site analysis, including but not limited to grading and weeding.• Soil and plant material salvage from impact areas, as appropriate to the timing of impact and restoration as well as the location of restoration sites.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<ul style="list-style-type: none">Specifications for plant and seed material appropriate to the locality of the mitigation site.Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation. <p>Habitat restoration, enhancement, and/or establishment activities will be conducted on some of the compensatory (i.e., selected permittee-responsible) mitigation sites to achieve the mitigation goals. A detailed design of the mitigation habitats will be created in coordination with the permitting agencies and be described in the HMMP. It is recognized that several HMMPs will be developed consistent with the selected mitigation sites and the resources mitigated at each. The primary engineering and construction contractors will ensure, through coordination with the Project Biologist, that construction is implemented in a manner that minimizes disturbance of such areas to the extent feasible. Temporary fencing will be used during construction to avoid sensitive biological resources that are adjacent to construction areas and can be avoided.</p> <p>Performance standards are targets for determining the effectiveness of the mitigation and assessing the need for adaptive management (e.g., mitigation design or maintenance revisions). Success criteria are formal criteria that must be met after a specific timeframe to meet regulatory requirements of the permitting agencies. Where applicable, replacement planting/seeding will be implemented if monitoring demonstrates that performance goals or success criteria are not met during a particular monitoring interval.</p> <p>The criteria for measuring performance will be used to determine whether the habitat improvement is trending toward sustainability (i.e., reduced human intervention) and to assess the need for adaptive management. These criteria must be met for the habitat improvement to be declared successful, both during a particular monitoring year and at the end of the establishment period. These performance criteria will be developed in consultation with the permitting agencies. The criteria include:</p> <ul style="list-style-type: none">Percent survival of planted trees (65–85%).Percent survival of transplanted trees (60–85%).Percent relative canopy cover (5–35%).Percent cover of invasive species (<1%).Percent cover of nonnative herbaceous plants (<10–25%).Percent absolute cover of native species (>50–80%).Percent relative cover of native species (>50%).Percent total cover of plant species (20–75%).Percent relative cover of wetland indicator species (75–90%).Water level within +/-6 inches (or other measurement) of design.Species composition and community diversity, relative to reference sites, and/or as described in the guidelines issued by permitting agencies (e.g., USFWS conservation guidelines for valley elderberry longhorn beetle). <p>Performance goals and success criteria will be provided for each of the years of monitoring and will be specific to habitat types at each permittee-responsible mitigation site. The monitoring schedule will be detailed in the site-specific HMMPs. To be deemed successful, the site may be required to meet the success</p>							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<p>criteria only in selected years. However, if success criteria are not met in specific years, remedial measures, including regrading, adjustment to modify the hydrological regime, and/or replacement planting or seeding, must be implemented and that year's monitoring must be repeated the following year until the success criteria are met. The success criteria specified must be reached without human intervention (e.g., irrigation, replacement plantings) aside from maintenance practices described in the site-specific HMMPs for maintenance during the establishment period.</p> <p>Where the HST alignment affects an existing mitigation bank, the Authority or its designee will modify the mitigation ratio to meet the vernal pool mitigation requirement. The Authority or its designee will relocate the affected portion of the mitigation bank or compensate the landowner in accordance with the Uniform Relocation and Real Property Policy Act of 1970, as amended.</p> <p>The Project Biologist will oversee the implementation of all HMMP elements and monitor consistent with the prescribed maintenance and performance monitoring requirements.</p> <p>The Project Biologist will prepare annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits. In addition, the Project Biologist will document compliance and submit to the Mitigation Manager.</p>							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<p>Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. The Authority or its designee will mitigate permanent wetland impacts through compensation determined in consultation with the USACE, SWRCB, USFWS, and CDFG, in order to be consistent with the HMMP (Bio-MM#56). Regulatory compliance for jurisdictional waters includes relevant terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and CDFG 1600 Streambed Alteration Agreement. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance. Performance standards for jurisdictional waters are generally described in Bio-MM#56. It is important to recognize that Bio-MM#56 includes standards that apply to several resource areas (e.g., jurisdictional waters, riparian habitat, California tiger salamander habitat).</p> <p>Compensation could include one of the following:</p> <ul style="list-style-type: none">• Purchase of credits from an agency-approved mitigation bank.• Fee-title-acquisition of natural resource agency-related property.• Purchase or establishment of a conservation easement with an endowment for long-term management of the property-specific conservation values.• In-lieu fee contribution determined through negotiation and consultation with the various natural resource regulatory agencies. <p>Base compensation for permanent impacts on the following ratios (acres of mitigation to acres of impact), pending agency confirmation:</p> <ul style="list-style-type: none">• Vernal pools and other seasonal wetlands: 2:1 Preservation and 1:1 Creation.• Coastal and Valley Freshwater Marsh: 1:1.• Other Wetlands: Between 1.1:1 and 1.5:1 (1:1 onsite and 0.1 to 0.5:1 offsite), based on function and values lost.• Ratios determined in consultation with the appropriate agencies.	<p>Implementing Party: Contractor's Biologist, Project Biologist</p> <p>Reporting Party: Project Biologist</p> <p>Monitoring Party: Mitigation Manager in coordination with the Authority</p>	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	<p>Bio-MM#60: Offsite Habitat Restoration, Enhancement, and Preservation. Prior to site preparation at the mitigation site, the Authority or its designee will consider the offsite habitat restoration, enhancement, or preservation program, and identify short-term temporary and/or long-term permanent effects on the natural landscape. A determination will be made on any effects from the physical alteration of the site to onsite biological resources, including plant communities, land cover types, and the distribution of special-status plants and wildlife.</p> <p>Appropriate seasonal restrictions (e.g., breeding season) may be applicable if appropriate habitats exist onsite. Activities resulting in the physical alteration of the site include grading/modifications to onsite topography, stockpiling, storage of equipment, installation of temporary irrigation, removal of invasive species, and drainage feature treatments. In general, the long-term improvements to</p>	<p>Implementing Party: Contractor's Biologist, Project Biologist</p> <p>Reporting Party: Project Biologist</p> <p>Monitoring Party: Mitigation Manager in coordination with the Authority</p>	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	habitat functions and values will offset temporary effects during restoration, enhancement, or preservation activities. The offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite. Potential effects on site-specific hydrology and the downstream resources will be evaluated as a result of implementation of the restoration-related activity. Site-specific BMPs and an SWPPP will be implemented as appropriate. The Authority or its designee will report on compliance with permitting requirements. The Project Biologist will be responsible for the monitoring and tracking of the program and will prepare a memorandum of compliance and submit to the Mitigation Manager.							
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager to verify completion of this measure and provide written documentation to Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#23: Project period impacts from the HST alternatives would permanently convert suitable habitat that has potential to support special-status plant species.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#50: Compensate for Impacts on Special-Status Plant Species. Prior to Final Design and during the permitting process, the Authority will comply with CESA and the federal ESA by implementing the following measures: Purchase credits from an existing mitigation bank or conduct a special-status plant re-establishment program within the same watershed or in proximity to the impact area at a 1:1 ratio. The success of the special status plant species program is related to the success of the vernal pools. Restored areas must be similar in species composition and ecosystem function to the reference habitat to be considered completed and successful at the end of the monitoring period. In general, this means that data collected on restored or enhanced pools must fall within the range of data obtained from reference pools. General performance standards and guidelines are presented in Bio-MM#58. Mitigate the impacts on special-status plants in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to final design	Memorandum documenting compliance
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. The Authority or its designee will conduct compensatory mitigation for the valley elderberry longhorn beetle, including transplantation and replacement of elderberry shrubs, and maintenance for replacement shrubs, following the USFWS' Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999a). Performance standards for valley elderberry longhorn beetle habitat are generally described in Bio-MM#58. It is important to recognize that Bio-MM#58 includes standards that apply to	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to Operations	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	several resource areas (e.g., jurisdictional waters, riparian habitat, California tiger salamander habitat).The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.							
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#24: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support vernal pool branchiopods.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#25: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support valley elderberry longhorn beetle.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. See description above.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X			Memorandum documenting compliance
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
								and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#26: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support California tiger salamander.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#52: Compensate for Impacts on California Tiger Salamander. The Authority or its designee will determine compensatory mitigation for the temporary and permanent loss of suitable upland and aquatic breeding habitat through agency consultation with the USFWS and CDFG. Compensatory mitigation could include one of the following: <ul style="list-style-type: none">• Purchase of credits from an agency-approved mitigation bank.• Fee-title-acquisition of natural resource regulatory agency-approved property.• Purchase or establishment of a conservation easement with an endowment for long-term management of the property-specific conservation values.• In-lieu fee contribution determined through negotiation and consultation with the various natural resource regulatory agencies.• Implementation of USFWS Biological Opinion and/or CDFG 2081(b). The Project Biologist will submit a memorandum documenting compliance to the Mitigation Manager.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Memorandum documenting compliance with agency-issued BO and 2081 Determination.
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#27: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support western spadefoot toad.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Memorandum documenting compliance
	Bio-MM#25: Conduct Emergence and Larval Surveys for Western Spadefoot Toad. The Project Biologist or designee (qualified herpetologist) will conduct pre-construction emergence and larval surveys for western spadefoot toad during the fall and winter rainy season. Emergence surveys will be conducted within the appropriate time period(s) after precipitation events as evaluated by a qualified herpetologist and will be partially in tandem with California tiger salamander surveys. Potential breeding depressions, including vernal pools, will be surveyed for western spadefoot toad larvae concurrently with special-status vernal pool branchiopod and California tiger salamander pre-construction surveys. Adults found within the construction footprint during emergence surveys will be relocated to an appropriate area adjacent to another pool suitable for breeding. Pre-construction surveys will help identify the proper implementation of mitigation measures, identify state and federal permit requirements, and inform the accurate implementation of mitigation requirements. The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance after surveys are complete.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#52: Compensate for Impacts on California Tiger Salamander. See description above.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Memorandum documenting compliance with agency-issued B) and 2081 Determination.
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#28: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support western pond turtle.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#53: Implement Western Pond Turtle Mitigation Measures. The Authority or its designee will mitigate the impacts on western pond turtle in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Project Biologist will submit a memorandum documenting compliance to the Mitigation Manager.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X			Memorandum documenting compliance with BO and 2081 Determination
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds.	Implementing Party: Contractor's Biologist, Project Biologist	X				Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above.	Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority						
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#30: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support nesting Swainson's hawk.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#54: Compensate for Loss of Swainson's Hawk Foraging Habitat. To compensate for the loss of Swainson's hawk foraging habitat, the Authority or its designee will provide compensatory mitigation that follows the ratios recommended by CDFG's (1994) Staff Report Regarding Mitigation for Impacts to Swainson's hawks in the Central Valley. The Project Biologist will submit a memorandum documenting compliance to the Mitigation Manager.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to operation	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<p>The ratios are based on the distance from the construction footprint to the closest active nest site (which for this species is defined as a nest used one or more times in the last 5 years), as follows:</p> <ul style="list-style-type: none">Compensate where impacts on foraging habitat occur within 1 mile of an active nest tree, at a 1:1 ratio on agricultural lands or other suitable foraging habitat; or at a 0.5:1 ratio where habitat can be managed for prey production.Compensate where impacts on foraging habitat occur within 5 miles, but more than 1 mile from an active nest tree, at a 0.75:1 ratio.Compensate where impacts on foraging habitat occur within 10 miles, but more than 5 miles from an active nest tree, at a 0.5:1 ratio. <p>Mitigate the impacts on special-status plants in accordance with the USFWS Biological Opinion and/or CDFG 2081(b).</p>							
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Bio#31: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support burrowing owls.	Bio-MM#55: Compensate for Loss of Burrowing Owl Foraging and Breeding Habitat. The Authority or its designee will provide base compensatory mitigation for the temporary and permanent loss of foraging and breeding habitat on the number of western burrowing owl pairs or individuals affected. Compensation will be at a 6.5:1 ratio (acres of habitat: number of pairs or individuals). Mitigate each occupied burrow destroyed by enlarging or enhancing existing unsuitable burrows at a 2:1 ratio based on CDFG's (1995) <i>Staff Report on Burrowing Owl Mitigation</i> . The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Memorandum documenting compliance with CDFG guidance
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#32: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support breeding birds, including raptors and burrowing owls.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#54: Compensate for Loss of Swainson's Hawk Foraging Habitat. See description above.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Memorandum documenting compliance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#33: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support special-status bats.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	HMMP
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		the Authority						consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#34: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support American badger dens.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Memorandum documenting compliance
	Bio-MM#47: Install Wildlife Fencing Prior to operation of the HST, the Contractor's Biologist will install free-ranging mammal-proof fencing along portions of the proposed project consistent with final design. The Project Biologist will verify that the installation is consistent with the designated terms and conditions in the applicable permits. The Project Biologist will prepare and submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Post-construction	Memorandum documenting compliance
	Bio-MM#48: Construction in Wildlife Movement Corridors. Before ground-disturbing activities, the Contractor's Biologist will submit a construction avoidance and minimization plan for the Eastman Lake-Bear Creek ECA to the Project Biologist for concurrence. During ground-disturbing activities, the Contractor will keep the Eastman Lake-Bear Creek ECA riparian corridors (including Deadman and Dutchman creeks) free of all equipment, storage materials, construction materials, and any significant potential impediments. The Contractor will minimize ground-disturbing activities within the Eastman Lake-Bear Creek ECA riparian corridors (Deadman and Dutchman creeks) during nighttime hours to the extent practicable. In addition, keep nighttime illumination (e.g., for security) from spilling into the ECA or shield nighttime lighting to avoid illumination spilling into the ECA. Inspections will verify compliance and the Project Biologist will report through an appropriate memorandum to the Mitigation Manager.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Post-construction	Memorandum documenting compliance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							prescribed in the resource agency permits.	
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#35: Project period impacts from the HST alternatives would permanently convert suitable habitat that has the potential to support San Joaquin kit fox dens.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#47: Install Wildlife Fencing. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#48: Construction in Wildlife Movement Corridors. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Pre-construction and during construction	Condition of Design/Build Contract
	Bio-MM#56: Compensate for Destruction of Natal Dens. The Authority or its designee will mitigate the destruction of kit fox natal dens by the purchase of suitable, approved habitat (USFWS and CDFG). Replace habitat at a minimum of 1:1 acre of habitat in order to provide additional protection and habitat in a location consistent with the recovery of the species. Mitigate the impacts on San Joaquin kit fox in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Project Biologist will submit a memorandum to the Mitigation Manager documenting compliance.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Memorandum documenting compliance with BO and 2081 Determination
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State	Implementing Party: Contractor's Biologist, Project	X				Prior to ground-disturbing	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Streambeds. See description above.	Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority					activities	
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#36: Project period impacts from the HST alternatives would permanently convert special-status plant communities (Great Valley Mixed Riparian and other riparian addressed in Bio#22).	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Prior to operation	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. See description above.	Implementing Party: Contractor's Biologist in coordination with the Authority Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		During construction	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above.	Implementing Party: Contractor's Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#37: Project period impacts from the HST alternatives would permanently convert jurisdictional waters.	Bio-MM#14: Post-Construction Compliance Reports. See description above.	Implementing Party: Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		Monitoring Party: Mitigation Manager in coordination with the Authority					described earlier) and/or other documentation prescribed in the resource agency permits.	
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to Operation	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above.	Implementing Party: Contractor's Biologist, Project Biologist Reporting Party: Project Biologist Monitoring Party: Mitigation Manager in coordination with the Authority	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	PK-MM#1: Compensate for Staging in Park Property for Construction. Options will include preparing a plan for alternative public recreation resources during the period of closure, and preparing signs and newsletters describing the project, its schedule, and the alternative public recreational opportunities. Alternative parks and recreational resources will include the installation of recreational facilities, trails, and landscaping on lands currently owned by the city but not already developed, or it will include temporary park development on open lands until the park can be reopened. Landscaping replacement will include replacement grass areas, tree replacement on a ratio of two 5-inch caliber trees for every tree removed and two shrubs for every shrub removed. All other facilities will be replaced or moved on a one-for-one ratio, including play equipment, benches, and the like.	Implementing Party: Contractor's Biologist Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post construction. Authority to coordinate with local jurisdictions.	The Authority and contractor will work with respective jurisdictions to develop a staging plan.
Bio#40: All of the HST alternatives would affect Camp Pashayan (within the San Joaquin River Ecological Reserve).	PK-MM#1: Compensate for Staging in Park Property for Construction. See description above.	Implementing Party: Contractor's Biologist Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post construction. Authority to coordinate with local jurisdictions.	The Authority and contractor will work with respective jurisdictions to develop a staging plan.
	PK-MM#4: Acquire Park Property for Camp Pashayan. Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	Implementing Party: Contractor's Biologist and Authority Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Hydrology and Water Resources								
No significant impacts on hydrology and water resources have been identified.								
Geology, Soils, and Seismicity								
With implementation of standard engineering design measures and BMPs, impacts for elevated structures, retained cuts, retained fills, and at-grade segments of each alternative would be less than significant. Therefore, mitigation measures are not required.								
Hazardous Materials and Wastes								
HMW#1: Handling of Extremely Hazardous Materials within 0.25 mile of a School	HMW-MM#1: Limit use of extremely hazardous materials near schools. The contractor shall not handle an extremely hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code within 0.25 mile of a school. Signage would be used to delimit all work areas within 0.25 mile of a school and the contractor would be required to monitor all use of extremely hazardous substances. Impacts to sensitive receptors are covered in SO-MM#1.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager to verify compliance during construction.		X			Construction/Monthly reporting	Contract Requirements/Specifications
Safety and Security								
S&S #2: Increased demand for fire, rescue, and emergency services at stations and HMF.	S&S-MM#2: Monitor response of local fire, rescue, and emergency service providers to incidents at stations and the HMF and provide a fair share of cost of service. Upon approval of the Merced to Fresno Section, the Authority will monitor service levels in the vicinity of the Merced and Fresno stations, in order to determine baseline service demands. “Service levels” consist of the monthly volume of calls for fire and police protection, as well as city- or fire protection district-funded EMT/ambulance calls that occur within the station and HMF site service areas. Prior to operation of the stations for HST service, the Authority will enter into an agreement with the public service providers of fire, police, and emergency services to fund the Authority’s fair share of services above the average baseline service demand level for the station and HMF service areas (as established during the monitoring period). The fair share will be based on projected passenger use for the first year of operations, with a growth factor for the first 5 years of operation. This cost-sharing agreement will include provisions for ongoing monitoring and future negotiated amendments as the stations are expanded or passenger use increases. Such amendments will be made on a regular basis for the first 5 years of station operation, as will be provided in the agreement. To make sure that services are made available, impact fees will not constitute the sole funding mechanism, although impact fees may be used to fund capital improvements or fixtures (for example, police substation, additional fire vehicles, onsite defibrillators) necessary to service delivery. After the first 5 years of operation, the Authority will enter into a new or revised agreement with the public service providers of fire, police, and emergency services to fund the Authority’s fair share of services. The fair share will take into account the volume of ridership, past record and trends in service demand at the stations and HMF site, new local revenues derived from station area development, and any services that the Authority may be providing at the station.	Implementing Party: Authority Monitoring/Reporting Party: Authority	X	X	X	X	Monitoring of service levels during construction in the vicinity of the Merced and Fresno stations to determine baseline service demands. Prior to operation of the stations for HST service	Authority to fund through fair share of services agreement.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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Socioeconomics, Communities, and Environmental Justice								
SO#1:	SO-MM#3: Implement measures to reduce impacts associated with the division of existing communities. Minimize impacts associated with the Castle Commerce Center HMF guideway to the Merced Estate mobile home park. Make every effort to locate suitable replacement housing for displaced residents. In cases where residents wish to remain in their neighborhoods, the purchase and development of infill lots or other real estate, relocation of existing buildings to vacant lots, and coordination with city staff regarding zoning and permit issues may be required. This mitigation measure will be effective in minimizing the impacts of the project by reducing the distance that residences, businesses and community facilities are relocated.	Implementing Party: Authority in coordination with affected jurisdiction Monitoring/Reporting Party: Authority	X		X		Prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs
	SO-MM#5: Continue outreach to disproportionately and negatively affected environmental justice communities of concern. The Authority will continue to conduct substantial environmental justice outreach activities in adversely affected neighborhoods to obtain resident feedback on potential impacts and suggestions for mitigation measures. Input from these communities will be used to refine project features during the design phase and facilitate the identification of the highest priority mitigation measures developed for the Merced to Fresno section. In addition, to offset any disproportionate effects, the Authority will develop special recruitment, training, and job set-aside programs so that minority and low-income populations are able to benefit from the jobs created by the project. This type of outreach is common for large infrastructure projects with long construction periods and has been found to be effective.	Implementing Party: Authority Monitoring/Reporting Party: Authority	X		X		Prior to acquisitions	Relocation Mitigation Plan
	SO-MM#6: Avoid displacements or consider housing options in Franklin-Beachwood, Le Grand, Fairmead, and rural areas. Displaced residents in these minority communities and rural areas may be unable to relocate within the same community because comparable replacement housing may not be available or limited at the time of acquisition. During property acquisition in these communities and rural areas, the Authority will consider all comparable replacement housing options to allow displaced residents to remain in their communities, including but not limited to the following: <ul style="list-style-type: none">Construct new housing on vacant lots within the communities.For any large parcels, relocate the residential structure or structures on the property if that is feasible and would move them outside the project area.Move the residential structures to nearby vacant parcels. This mitigation measure will be effective by minimizing the distances that residences or businesses have to relocate within these communities and by working to keep them within their current community.	Implementing Party: Authority Monitoring/Reporting Party: Authority	X		X		Prior to acquisitions and During property acquisitions	Relocation Mitigation Plan
	SO-MM#4: Implement measures to reduce impacts associated with the relocation of community facilities. Minimize impacts associated with the acquisition of the homeless shelter in Merced by conducting outreach and coordinating with the facility prior to acquisition. Coordinate with the respective parties prior to land acquisition to reconfigure or relocate facilities, as necessary, to minimize disruption to activities. To reduce disruption to the use of these community facilities, the Authority will make sure that reconfiguring of land uses or buildings or relocating of community facilities is completed before	Implementing Party: Authority Monitoring/Reporting Party: N/A	X	X			Final design and Prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	the demolition of any existing structures. Work with the City of Merced and Merced City School District to facilitate the construction of the facilities prior to demolition of the existing structures. During the design process, the Outreach Team will conduct targeted outreach efforts for these facilities to understand and determine their needs for siting criteria. This mitigation measure will be effective in minimizing the impacts of the project by completing new facilities prior to relocation being necessary, and by involving affected facilities in the process of identifying new locations for their facilities.							
SO#3: Displacement of Community Facility. Acquisition of a homeless shelter in the City of Merced.	SO-MM#5: Continue outreach to disproportionately and negatively affected environmental justice communities of concern. The Authority will continue to conduct substantial environmental justice outreach activities in adversely affected neighborhoods to obtain resident feedback on potential impacts and suggestions for mitigation measures. Input from these communities will be used to refine project features during the design phase and facilitate the identification of the highest priority mitigation measures developed for the Merced to Fresno section. In addition, to offset any disproportionate effects, the Authority will develop special recruitment, training, and job set-aside programs so that minority and low-income populations are able to benefit from the jobs created by the project. This type of outreach is common for large infrastructure projects with long construction periods and has been found to be effective.	Implementing Party: Authority Monitoring/Reporting Party: Authority	X	X			Prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs
	SO-MM#5: Continue outreach to disproportionately and negatively affected environmental justice communities of concern. The Authority will continue to conduct substantial environmental justice outreach activities in adversely affected neighborhoods to obtain resident feedback on potential impacts and suggestions for mitigation measures. Input from these communities will be used to refine project features during the design phase and facilitate the identification of the highest priority mitigation measures developed for the Merced to Fresno section. In addition, to offset any disproportionate effects, the Authority will develop special recruitment, training, and job set-aside programs so that minority and low-income populations are able to benefit from the jobs created by the project. This type of outreach is common for large infrastructure projects with long construction periods and has been found to be effective.	Implementing Party: Authority Monitoring/Reporting Party: Authority	X	X			Prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs
Station Planning, Land Use, and Development								
No impacts on land use have been identified that would be significant or potentially significant under CEQA. All three alternatives and the HMF sites are consistent with local and regional land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect. The alternatives and the HMF sites would not cause significant changes in land use patterns or intensities that would be incompatible with adjacent land uses. Station effects related to increased density and TOD are considered beneficial and would result in infill development and redevelopment of the downtown centers, which would reduce pressures on the surrounding agricultural lands.								
Agricultural Lands								
Ag#1: Permanent Conversion of Agricultural Land to Nonagricultural Use.	Ag-MM#1: Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. The Authority will enter into an agreement with the DOC California Farmland Conservancy Program to implement the preservation of farmland. The Authority will fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, within the same agricultural regions as the impacts occur, at a	Implementing Party: Authority & California Farmland Conservancy Monitoring/Reporting Party: Authority	X				Prior to construction/Monthly reporting Prior to construction	The Authority will enter into an agreement with the DOC California Farmland Conservancy Program to implement the preservation of farmland. The Authority and California Farmland Conservancy Program will develop selection criteria under this agreement to guide the pursuit and purchase of conservation easements.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	replacement ratio of not less than 1:1. The California Farmland Conservancy Program will work with local, regional, or statewide entities whose purpose includes the acquisition and stewardship of agricultural conservation easements. The Authority and California Farmland Conservancy Program will develop selection criteria under this agreement to guide the pursuit and purchase of conservation easements. These will include, but are not limited to, provisions to ensure that the easements will conform to the requirements of Public Resources Code Section 10252 and to prioritize the acquisition of willing seller easements on lands that are adjacent to other protected agricultural lands or that would support the establishment of greenbelts and urban separators. This mitigation measure would be effective given the nationwide and local success of farmland preservation programs using agricultural conservation easements and the experience of the DOC California Farmland Conservancy program. However, because the mitigation does not anticipate the creation of new farmland (conversion of natural lands to agriculture), the Authority and FRA are not claiming that the mitigation measure would reduce impacts to a less than significant level.							
Electromagnetic Fields and Electromagnetic Interference								
The project would comply with applicable federal and state regulations and implement design strategies as outlined in the Final Statewide Program EIR/EIS (Authority and FRA 2005). No significant impacts would occur during construction nor operation of the Project Alternatives or HMFs.								
Parks, Recreation, and Open Space								
PK#4: Camp Pashayan (City of Fresno) Construction Impacts	PK-MM#1: Compensate for Staging in Park Property for Construction. The Authority will coordinate with the respective jurisdictions to establish appropriate compensation in terms of allowance or additional property to accommodate for displaced park use during construction. Options will include preparing a plan for alternative public recreation resources during the period of closure, and preparing signs and newsletters describing the project, its schedule, and the alternative public recreational opportunities. Alternative parks and recreational resources will include the installation of recreational facilities, trails, and landscaping on lands currently owned by the city but not already developed, or it will include temporary park development on open lands until the park can be reopened. Landscaping replacement will include replacement grass areas, tree replacement on a ratio of two 5-inch caliber trees for every tree removed and two shrubs for every shrub removed. All other facilities will be replaced or moved on a one-for-one ratio, including play equipment, benches, and the like.	Implementing Party: Contractor's Biologist Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X	X	X		Prior to construction/Post construction. Authority to coordinate with local jurisdictions.	The Authority and contractor will work with respective jurisdictions to develop a staging plan.
PK#7: Camp Pashayan Park. At Camp Pashayan, 0.6 acre of park area would be acquired for support columns and easement for elevated structure.	PK-MM#4: Acquire Park Property for Camp Pashayan. Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	Implementing Party: Contractor's Biologist and Authority Monitoring/Reporting Party: Mitigation Manager in coordination with the Authority	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.
PK#8: Roeding Park	PK-MM#5: Address Noise at Roeding Park with City of Fresno. To	Implementing Party: Contractor to identify sound barriers	X				Design and Construction	The Authority will work with the

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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(City of Fresno) Noise Impacts on the eastern portions of the park	mitigate the noise impacts, a sound barrier approximately 2,800 feet in length will be constructed. It is assumed that a sound barrier will be 10 to 14 feet tall and have aesthetic treatment. A 10-foot-high sound barrier will reduce noise to 64 dBA at 250 feet inside the park and residual noise effects will occur. A 14-foot-high sound barrier will reduce noise effects to within 1 dB of no impact. Aesthetic treatment of the sound barrier will be selected with input from the community.	in construction plans. Monitoring/Reporting Party: Mitigation Manager to review plans to verify compliance with this measure.						City of Fresno as the resource owner to address noise impacts. It is possible that the City of Fresno would view the projected noise levels as acceptable and preferable to the implementation of mitigation measures.
Aesthetics and Visual Resources								
VQ#1: Visual Disturbance during Construction. Construction activities would cause visual impacts in urban areas.	VQ-MM#2: Minimize Light Disturbance During Construction. Where construction lighting will be required during nighttime construction, shield such lighting and direct it downward in such a manner that the light source is not visible offsite, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager to verify compliance during construction.	X	X			Construction/Weekly reporting	Contract Requirements/ Specifications
VQ#2: Nighttime Lighting during Construction. Nighttime lighting would affect Merced and Fresno urban areas.	VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context. During final design of elevated guideways and the Merced and Fresno stations, the Authority will coordinate with local jurisdictions on the design of these facilities so that they are designed appropriately to fit in with the visual context of the areas near them. This will include the following activities: <ul style="list-style-type: none">For stations: During the station design process, establish a local consultation process with the City of Merced and the City of Fresno to identify and integrate local design features into the station design through a collaborative context-sensitive solutions approach. The process will include activities to solicit community input in their respective station areas. This effort will be coordinated with the station area planning process that will be undertaken by those cities under their station area planning grants.For elevated guideways in cities or unincorporated communities: During the elevated guideway design process, establish a process with the city or county with jurisdiction over the land along the elevated guideway to advance the final design through a collaborative context-sensitive solutions approach. Participants in the consultation process will meet on a regular basis to develop a consensus on the urban design elements to be incorporated into the final guideway designs. The process will include activities to solicit community input in the affected neighborhoods. Actions taken to help achieve integration with the local design context during the context-sensitive solutions process will include the following: <ul style="list-style-type: none">Design HST stations and associated structures such as elevators, escalators, and walkways to be attractive architectural elements or features that add visual interest to the streetscapes near them.Design HST station parking structures and adjacent areas to integrate visually into the areas where they would be located. Where the city has adopted applicable downtown design guidelines, the parking structures and adjacent areas will be designed to be compatible with the policies and principles of those guidelines.	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager to review plans to verify compliance with measure.	X				Final design and Construction/Monthly reporting	Established local consultation process with City of Merced and City of Fresno

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	<ul style="list-style-type: none">For the elevated guideways and columns, incorporate architectural elements, such as graceful curved or tapered sculptural forms and decorative surfaces, to provide visual interest. Include decorative texture treatments on large-scale concrete surfaces such as parapets and other portions of elevated guideways. Include a variety of texture, shadow lines, and other surface articulation to add visual and thematic interest. Closely coordinate the design of guideway columns and parapets with station and platform architecture to promote unity and coherence where guideways lie adjacent to stations.Integrate trees and landscaping into the station streetscape and plaza plans where possible to soften and buffer the appearance of guideways, columns, and elevated stations. This will be consistent with the principles of crime prevention through environmental design.For the stations, structures, and related open spaces: incorporate design features that provide interest and reflect the local design context. These features could include landscaping, lighting, and public art.							
VQ #11. Sound Barrier and Retaining Wall Would Block Views.	VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST. Upon the completion of construction, the Authority will plant the surface of the ground supporting the overpasses (slope-fill overpasses) and retained fill elements with vegetation consistent with the surrounding landscape in terms of vegetative type, color, texture, and form. During final design, the Authority will consult with the affected cities and counties regarding the landscaping program for planting the slopes of the overcrossings and retained fill. Plant species will be selected on the basis of their mature size and shape, growth rate, and drought tolerance. No species that is listed on the Invasive Species Council of California’s list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed, if needed. Where wall structures supporting the overpasses or retained fill are proposed, the structure will employ architectural details and low-maintenance trees and other vegetation to screen the structure, minimize graffiti, and reduce the effects of large walls. Surface coatings will be applied on wood and concrete to facilitate cleaning and the removal of graffiti. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable time after notification.	Implementing Party: Contractor/Authority Monitoring/Reporting Party: Mitigation Manager to review plans to verify compliance with measure.			X		Pre and Post Construction/monthly reporting	Contract Requirements/ Specifications
	VQ-MM#6: Provide Sound Barrier Treatments. The Authority will design a range of sound barrier treatments for visually sensitive areas, such as those where residential views of open landscaped areas would change or in urban areas where sound barriers would adversely affect the existing character and setting. The Authority will develop the treatments during final design and integrate them into the final project design. The treatments will include, but are not limited to, the following: <ul style="list-style-type: none">Sound barriers along elevated guideways may incorporate transparent materials, where sensitive views would be adversely affected by solid sound barriers.Sound barriers will use non-reflective materials and will be of a neutral color.Surface design enhancements and vegetation appropriate to the visual context of the area will be installed with the sound barriers. Vegetation will	Implementing Party: Contractor Monitoring/Reporting Party: Mitigation Manager to review construction plans to verify compliance with this measure.		X			Construction/monthly reporting	Contract Requirements/ Specifications

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	be installed consistent with the provisions of VQ-MM#5. Surface enhancements will be consistent with the design features and will include architectural elements (i.e. stamped pattern, surface articulation, and decorative texture treatment as determined acceptable to the local jurisdiction. Surface coatings will be used on wood and concrete sound barriers to facilitate cleaning and the removal of graffiti.							
	VQ-MM#7: Screen Traction Power Distribution Station. Upon completion of station construction, the Authority will screen the traction power substations (located at approximately 30-mile intervals along any of the HST alternatives) from public view through the use of landscaping or solid walls/fences. This will consist of context-appropriate landscaping of a type and scale that does not draw attention to the station. Plant species will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed within the landscaped areas. Walls will be constructed of cinder-block or similar material and will be painted a neutral color to blend in with the surrounding context. If a chain-link or cyclone fence is used, it will include wood slats in the fencing. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction.	Implementing Party: Contractor/Authority Monitoring/Reporting Party: Mitigation Manager to review construction plans to verify compliance with this measure.			X		Post Construction	Contract Requirements/ Specifications
VQ IMPACT #12. Traction Power Distribution Stations Would Alter Visual Character or Block Views.	VQ-MM#7: Screen Traction Power Distribution Station. Upon completion of station construction, the Authority will screen the traction power substations (located at approximately 30-mile intervals along any of the HST alternatives) from public view through the use of landscaping or solid walls/fences. This will consist of context-appropriate landscaping of a type and scale that does not draw attention to the station. Plant species will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed within the landscaped areas. Walls will be constructed of cinder-block or similar material and will be painted a neutral color to blend in with the surrounding context. If a chain-link or cyclone fence is used, it will include wood slats in the fencing. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction.	Implementing Party: Contractor/Authority Monitoring/Reporting Party: Mitigation Manager to review construction plans to verify compliance with this measure.			X		Post Construction	Contract Requirements/ Specifications
Cultural and Paleontological Resources								
Arch#1: Effect on Significant Prehistoric and Historic-Era Archaeological Resources During Construction	Arch-MM#1: Conduct Archaeological Training. Prior to ground-disturbing activities within the project alternatives, a qualified professional archaeologist, who meets the SOI's Standards for Archaeology, will develop a training program and printed material to be presented to construction personnel. The purpose of this training and accompanying materials will be to familiarize construction personnel with the relevant legal (Section 106/NEPA/CEQA) context for cultural resources of the project and with the types of cultural sites, features, and artifacts that could be uncovered during construction activities. These training sessions will be conducted prior to commencing construction within discrete portions of the project alternatives or as needed as construction crews and supervisors may change. The archaeological training program is further detailed in the ATP, which is being developed with input from all	Implementing Party: Qualified Professional Archaeologist Monitoring/Reporting Party: Qualified Professional Archaeologist	X				Prior to ground-disturbing activities/weekly monitoring	Worker Environmental Awareness Program training ATP MOA An Unanticipated Discoveries Plan is a part of the ATP and has been developed, in coordination with the

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	<p>consulting parties, including:</p> <ul style="list-style-type: none">Merced CountyCity of MercedCity of Merced Design Review Board/Commission and Historic Preservation CommissionFresno CountyCity of FresnoCity of Fresno Historic Preservation ProgramFresno County Landmarks and Records Advisory CommissionMadera CountyCity of MaderaCalifornia SHPOACHP <p>In addition, consultation is being undertaken with participating parties and entities that have expressed a formal interest in being involved with the project, including Native American tribes. The ATP will reflect the input of all parties. The ATP is a living document, monitored by all of the consulting parties so that compliance activities and mitigation commitments can be tracked. The ATP will be also be tied to the MOA, which will also contain compliance and tracking stipulations tied to each specific mitigation item. The combination of the ATP and the MOA, along with ongoing coordination with the consulting parties, tracks and measures the commitments.</p>							<p>consulting parties, to detail the specific procedures to be followed if archaeological materials are found during construction.</p> <p>Implement an ADRP if the circumstances warrant an ADRP. The Authority will provide the ADRP, as an element of the treatment plan prepared for the section, to the MOA signatories and MOA concurring parties for review and comment.</p> <p>Programmatic Agreement (PA)</p>
	<p>Arch-MM#2: Halt Work in the Event of an Archaeological Discovery. If any cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will halt, and the project proponent will consult with a qualified archaeologist to assess the significance of the find and any work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. An Unanticipated Discoveries Plan will be developed in coordination with the consulting parties to detail the specific procedures to be followed if archaeological materials are found during construction. This plan is a part of the ATP, which is also being developed through a consultative process.</p> <p>The California State Lands Commission (CSLC) will be notified if the find is a cultural resource on or in the submerged lands of California, consequently under the jurisdiction of the CSLC. The project proponent will comply with all applicable rules and regulations promulgated by CSLC with respect to cultural resources located in submerged lands, and in accordance with the Programmatic Agreement (PA).</p> <p>If human remains are encountered, the project proponent will comply with applicable laws and regulations regarding notification and disposition of the remains. If the coroner determines that the remains are Native American, the coroner will notify the Native American Heritage Commission (NAHC).</p> <p>If any find is determined to be significant, the project proponent and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation in conjunction with the State Historic Preservation Officer (SHPO) and the MOA signatories. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting</p>	<p>Implementing Party: Qualified Professional Archaeologist, in consultation with the California State Lands Commission, the Native American Heritage Commission, and the State Historic Preservation Office, as appropriate.</p> <p>Monitoring/Reporting Party: Archaeological Monitor, in coordination with Authority, SHPO and appropriate consulting agencies</p>		X			Construction	ATP MOA

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	<p>archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards as determined in the project MOA. In considering any suggested mitigation proposed by the consulting archaeologist to mitigate impacts on historical resources or unique archaeological resources, a determination will be made whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations.</p> <p>If, in consultation with the consulting archaeologist, it is determined that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, one of the following actions may be followed, as feasible:</p> <ul style="list-style-type: none">• If prudent and feasible, redesign the project to avoid any adverse effect on the significant archaeological resource.• Implement Arch-MM#3, Intentional Site Burial for Site Preservation.• Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an ADRP, such a program will be conducted. Together with a project archaeologist, the scope of the ADRP will be determined. The archaeologist will prepare a draft ADRP, which will identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes will address the applicable research questions. The Authority will provide the ADRP, as an element of the treatment plan prepared for the section, to the MOA signatories and MOA concurring parties for review and comment. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods will not be applied to portions of the archaeological resources if nondestructive methods are practical. <p>Performance tracking of this mitigation measure will be based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.</p>							
	<p>Arch-MM#3: Plan an Intentional Site Burial Preservation In-Place. If project engineering concludes that avoidance is not feasible, a process to determine whether the site can be preserved through intentional site burial will be considered. When complete avoidance is not possible, preservation in-place is the preferred form of mitigation for an “historical resource of an archaeological nature” because it retains the relationships between artifact and context, and may avoid conflicts with groups associated with the site, pursuant to PRC 15126.4(b)(3)(A). The process, presented in overview below, is specified in detail in the ATP, which is being developed in coordination with all of the project’s consulting parties.</p> <p>To intentionally bury a site, it will be necessary to conduct test excavations to determine the vertical and horizontal extent of the identified resources discovered as planning proceeds or through accidental discovery. If excavations have not yet been conducted for the purpose of evaluating the site for eligibility in accordance with Section 106 of the NHPA, the Authority will contract with a qualified archaeologist to conduct a formal excavation of the</p>	<p>Implementing Party: Qualified Professional Archaeologist</p> <p>Monitoring/Reporting Party: Qualified Professional Archaeologist, in coordination with the Authority, SHPO and appropriate consulting agencies</p>	X	X	X		Prior to construction/Weekly reporting	ATP MOA

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	<p>site to delineate the site boundaries and to determine the site's eligibility for the CRHR or NRHP.</p> <p>If found to be eligible and avoidance is not possible, consideration will be given to intentional site burial. The contracted archaeologist will, in addition to the formal delineation of the site boundaries, prepare and implement a design plan to dictate the conditions of the intentional site burial according to the recommendations discussed in the National Park Service Technical Brief Number 5, Intentional Site Burial: A Technique to Protect Against National or Mechanical Loss (Thorne 1991).</p> <p>Among the requirements of an effective capping, the mechanical process of burying the site must be designed in a manner that will make sure that the site matrix is protected during the placement process and during the operation of the HST. Preconstruction testing can be used to determine the construction equipment and fill material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site.</p> <p>If the preconstruction testing determines that compression or warpage of the site is probable and the mitigation will not effectively reduce the effects of the project to less than significant levels, additional mitigation, such as data recovery, will be necessary. Furthermore, if it is determined that the engineering requirements of the construction and operation of the HST at the location of the site prohibit the effective avoidance of the site, or if the surrounding conditions prohibit the protection or preservation of the archaeological components, the mitigation of data recovery will be the only feasible mitigation (see Arch-MM#2). In addition, the Authority will make provisions with the contracted archaeologist to monitor the site after the burial process is completed.</p> <p>Performance tracking of this mitigation measure will be based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties.</p>							
	<p>Arch-MM#4: Conduct Archaeological Monitoring in Proximity to Identified Sites or Areas of Sensitivity. Ground-disturbing activities that have the potential to affect archaeological remains may occur in areas that have been identified as either the location of a known archaeological site, or in an area known to be sensitive for the presence of buried cultural resources. The Authority will retain the services of a qualified archaeological monitor who will be present during all ground-disturbing construction activities occurring in native sediments/soils. The process for archaeological monitoring, presented in overview below, will be specified in detail in the ATP, developed in coordination with all of the project's consulting parties.</p> <p>In the event that cultural resources are exposed during construction, following guidelines presented in the ATP, the archaeological monitors will be empowered to temporarily halt activities in the immediate vicinity of the discovery while it is evaluated for significance. If the archaeologist determines that the cultural resources exposed are unique archaeological resources as defined by Section 21083.2 of CEQA, then the archaeologist will conduct additional excavations to avoid impacts on these resources by the development. If they are not "unique," then no further mitigation will be required. Unique cultural resources will be determined based on the criteria set forth in Section 21083.2 of CEQA. The Authority will seek Native American</p>	<p>Implementing Party: Qualified Professional Archaeologist</p> <p>Monitoring/Reporting Party: Archaeological Monitor, in coordination with the Authority, SHPO and appropriate consulting agencies</p>	X	X	X		Construction/Weekly reporting	ATP MOA

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	input and consultation under terms and conditions specified in the ATP and MOA. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.							
	Pale-MM#1: Engage a Paleontological Resources Specialist to Direct Monitoring during Construction. At least 120 days prior to construction, a paleontological resources specialist (PRS) will be designated for the project and will be responsible for determining where and when paleontological resources monitoring should be conducted. Paleontological resources monitors (PRMs) will be selected by the PRS based on their qualifications, and the scope and nature of their monitoring will be determined and directed based on the Paleontological Resource Monitoring and Mitigation Plan (PRMMP). The PRS will be responsible for developing and implementing the Worker Environmental Awareness Program training. All management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training prior to beginning work on the project and will be provided with the necessary resources for response in case paleontological resources are found during construction. The PRS will document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5.	Implementing Party: A paleontological resources specialist (PRS) & paleontological resources monitors Monitoring/Reporting Party: Authority	X	X			Identify PRS at least 120 days prior to construction The PRS will document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find.	Paleontological Resource Monitoring and Mitigation Plan (PRMMP)
Pale#2: Effect on Paleontological Resources during Construction	Pale-MM#2: Prepare and Implement a PRMMP. Paleontological monitoring and mitigation measures are restricted to those construction-related activities that will result in the disturbance of paleontologically sensitive sediments. The PRMMP will include a description of when and where construction monitoring will be required; emergency discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; preconstruction coordination procedures; and procedures for reporting the results of the monitoring and mitigation program. In general, the monitoring program will reflect site-specific construction of the selected option. The PRMMP will be consistent with Society of Vertebrate Paleontology guidelines (SVP 1995) for the mitigation of construction-related impacts on paleontological resources. The PRMMP will also be consistent with the SVP (1996a, b) conditions for receivership of paleontological collections and any specific requirements of the designated repository for any fossils collected.	Implementing Party: Paleontological resources monitor Monitoring/Reporting Party: Authority	X	X			Construction	PRMMP Worker Environmental Awareness Program training
	Pale-MM#3: Halt Construction when Paleontological Resources Are Found. If fossil or fossil-bearing deposits are discovered during construction, regardless of the individual making a paleontological discovery, construction activity in the immediate vicinity of the discovery will cease. This requirement will be spelled out in both the PRMMP and the Worker Environmental Awareness Program. Construction activity may continue elsewhere provided that it continues to be monitored as appropriate. If the discovery is made by someone other than a PRM or the PRS, a PRM or the PRS will immediately be notified.	Implementing Party: The person that makes a paleontological discovery and/or the PRM or PRS Monitoring/Reporting Party: Mitigation Manager and PRM/PRS to halt construction and notify Authority of discovery.	X	X			Construction/weekly reporting	A Built Environment Treatment Plan (BETP) provides additional detail on the methodology for the avoidance of adverse vibration effects, and how that will be implemented during the project.
	Hist-MM#1: Avoid Adverse Vibration Effects. The HST Project will develop construction methods to avoid indirect adverse effects or substantial adverse change to any historic properties (Section 106) or historical resources (CEQA) from vibration caused by construction activities. Vibration from impact pile-driving during construction could cause the physical destruction, damage,	Implementing Party: Contractor Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies.	X	X	X		Preconstruction surveys and Construction	BETP PA

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	or alteration of historic properties or historical resources if the pile-driving is within 25 to 50 feet of the building. Because this impact pile-driving could cause adverse effects or substantial adverse changes, alternative construction methods causing less than 0.12 peak particle velocity of one inch per second (0.12 PPV in/sec) measured at the receptor would be developed for construction activities near historic properties or historical resources if they are determined to be extremely susceptible to vibration damage. If piling is more than 50 feet from buildings, or if alternative methods such as push piling or auger piling can be used, damage from construction vibration should not be an issue. Preconstruction surveys conducted at locations within 50 feet of piling would document existing condition of buildings in case there is an issue during or after construction. The mitigation measure described above is consistent with FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment (2005) for evaluation of noise and vibration impacts associated with HSTs. A BETP will be prepared that provides additional detail on the methodology for the avoidance of adverse vibration effects, and how that will be implemented during the project. The BETP is being developed in coordination with the project's consulting parties to verify that all parties have a role in the generation of this plan. Performance tracking of this mitigation measure is based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties.							
Hist#1: Effect on Historically Significant Built-Environment Resources During Construction	Hist-MM#2: Develop Protection and Stabilization Measures. The BETP will identify historic properties/historical resources that will require protection and/or stabilization prior to the start of construction of the project. Properties subject to this mitigation activity include any that are physically affected, and/or relocated, and/or in close enough proximity to require protection. This mitigation will be used to confirm that adverse effects on historic properties/historical resources will be either avoided entirely, or minimized to the extent possible. This mitigation will be developed in consultation with the landowner and land-owning agencies, as well as the SHPO and the MOA signatories, as required by the PA. Such measures will include, but will not be limited to, vibration monitoring of construction in the vicinity of historic properties; cordoning off of resources, such as traffic, equipment storage, and personnel, from construction activities; shielding of resources from dust or debris; and stabilization of buildings adjacent to construction. For buildings that are to be moved, such measures will include stabilization of buildings and structures before, during, and after relocation; protection of buildings and structures during temporary storage; and relocation at a new site and during subsequent rehabilitation. Moving buildings could result in minor impacts on air emissions from equipment and vehicles and minor effects on developed or undeveloped sites. Protection and stabilization measures proposed for impacted resources will be presented in more detail in the BETP, a plan that is being developed with critical input from all of the project's consulting parties. Performance tracking of this mitigation measure is based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties	Implementing Party: Contractor and Authority, in consultation with the landowner, land-owning agencies, SHPO, and the MOA signatories, as required by the Programmatic Agreement (PA). Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies	X	X			Preconstruction surveys and Construction/weekly reporting	BETP PA Historic Structure Report (HSR) and the relocation plan
	Hist-MM#3: Minimize Adverse Effects through Relocation of Historic Structures. The BETP will identify historic properties/historical resources that	Implementing Party: Contractor Monitoring/Reporting Party: Authority, in consultation	X	X			Preconstruction surveys and Construction/weekly	BETP

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			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	will be relocated to help avoid destruction and minimize the direct adverse effect of their physical damage or alteration. The plan for relocation and implementation of relocation will take place prior to construction. The relocation of the historic properties/historical resources will take into account the historic site and layout (i.e., the orientation of the buildings to the cardinal directions), as well as their potential re-use. All structures will be thoroughly recorded in a Historic Structure Report (HSR) (see below), and the relocation plan will provide for stabilization of the structures before, during, and after the move. The project's consulting parties will provide input to develop the relocation of historic structures section of the BETP in an effort to provide a comprehensive and thorough approach that would best meet the needs of the parties as well as the resources. Relocating historic structures has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful relocation of resources and the approval of the process by the SHPO and appropriate consulting parties.	with the SHPO and appropriate consulting agencies					reporting	Photographs and nomination document
	Hist-MM#5: Prepare and Submit NRHP Nominations. The BETP will identify specific historic properties/historical resources for nomination to the NRHP Program of the National Park Service (NPS). Properties subject to this mitigation will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (i.e., the Authority). Current photographs of the property used in the nomination(s) will be taken prior to the start of project construction. The nomination document may also use other current and/or historic images prepared as part of other mitigation activities. Preparing and submitting NRHP nominations has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.	Implementing Party: Authority Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies	X	X			Prior to construction/monthly reporting	BETP Photographs and nomination document
	Hist-MM#6: Prepare and Submit CRHR Nominations. The BETP identifies specific historical resources for nomination to the CRHR Program at the California OHP. Current photographs of the resource used in the nomination(s) will be made prior to the start of construction. The nomination document may also use current and/or historic images prepared as part of other mitigation activities. Properties subject to this mitigation will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (i.e., the Authority). Preparing and submitting CRHR nominations has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.	Implementing Party: Authority Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies	X	X			Prior to construction	BETP Photographs and recordation document per National Parks Service (NPS) HABS/HAER/HALS guidelines (up to Level II HABS written data standards)
	Hist-MM#7: Prepare and Submit HABS/ HAER/ HALS Documentation. The BETP identifies specific historical resources that would be physically altered, damaged, relocated, or destroyed by the project and that may be documented in compliance with the HABS/HAER/HALS programs. Consultation with the SHPO, NPS, and the consulting parties will be required if any of the resources must be documented to these standards. Prior to the start of construction, in consultation with the Western Regional	Implementing Party: Authority, in consultation with the Western Regional Office of the NPS Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies	X				Prior to construction	BETP HSR

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	<p>Office of the NPS, Oakland, California, large-format (4-inch by 5-inch, or larger, negative-size) black and white photographs will be taken of these historic properties/historical resources showing them in context, as well as details of character-defining features. The photographs will be processed for archival permanence in accordance with HABS/HAER/HALS photographic specifications. Each view will be fully captioned and, if necessary, perspective corrected. Oblique aerial photography will be considered as a photographic recordation option in these coordination efforts.</p> <p>The recordation will follow the NPS HABS/HAER/HALS guidelines, and the report format, views, and other documentation details will be coordinated with the NPS. It is anticipated that the recordation of historic properties will be completed to Level II HABS written data standards and will include archival and digital reproduction of historic images, plans, and drawings, if available. Copies of the documentation will be offered to the appropriate local governments, historical societies and agencies, and libraries. The documentation will also be offered in printed and electronic form to any repository or organization upon which SHPO, the Authority, and local agency with jurisdiction over the property, through consultation, may agree. The electronic copy of the report may also be placed on an agency or organization's web site.</p> <p>Preparing and submitting HABS/HAER/HALS documentation has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.</p>							
	<p>Hist-MM#8: Prepare Historic Structure Reports. The BETP identifies historic properties/historical resources that would be physically altered, damaged, or relocated that would be subject to an HSR. The HSR will be prepared prior to the start of construction. The HSR will follow the general guidelines for such reports as described in the California OHP publication, "Historic Structure Report Format" (OHP n.d.). The scope of each HSR will be developed in consultation with the land-owning agencies, the SHPO, and appropriate consulting parties. The HSR will include documentation of existing landscaping, if appropriate. The HSRs may be used in the ongoing planning process and re-use of the properties, and may be coordinated with the other mitigation documentation activities, such as HABS/HAER records. Preparing HSRs has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.</p>	<p>Implementing Party: Authority Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies</p>	X				Prior to construction	<p>BETP</p> <p>Interpretive exhibits</p> <p>Informative permanent metal plaques</p>
	<p>Hist-MM#9: Prepare Interpretive Exhibits. Some historic properties/historical resources may be identified in the BETP for historic interpretation. Interpretive exhibits will provide information regarding the specific historic property or historical resource. The interpretive exhibits will utilize images, narrative history, drawings, or other material produced for the mitigation described above, including the HABS/HAER reports, NRHP and CRHR nominations, or other archival sources. The interpretive exhibits may be in the form of, but are not limited to, interpretive display panels and/or printed material for dissemination to the public. The interpretive exhibits may be installed at local libraries, historical societies, or public buildings.</p>	<p>Implementing Party: Authority Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies</p>			X		Post-construction/annual reporting	<p>BETP</p> <p>Photographic documentation</p> <p>Plan for repairs to historic properties</p>

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	All historic properties/historical resources demolished by the project will be the subject of informative permanent metal plaques that will be installed at the site of the demolished historic property, or at nearby public locations. The plaques will provide a brief history of the property, its engineering/architectural features and characteristics, and the reasons for and date of its demolition. Preparing interpretive exhibits has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties							
	Hist-MM#10: Plan Repair of Inadvertent Damage. The BETP provides a plan for the repair of inadvertent damage to historic properties/historical resources. The plan will be developed prior to construction, and it states that damage resulting from the project to any of the historic properties/historical resources near construction activities will be repaired in accordance with the SOI's Standards for Rehabilitation. The HSR, and/or HABS/HAER, recordation will photographically document the condition of historic properties/historical resources prior to the start of construction to establish the baseline condition for assessing damage. A copy of this photographic documentation will be provided to the landowner or land-owning agencies. Prior to implementation, plans for any repairs to historic properties will be submitted for SHPO review and comment to verify conformance with the SOI's Standards for Rehabilitation. Performance tracking of this mitigation measure is based upon successful repair of any damage to historic properties/historical resources and approval of that work by the SHPO and appropriate consulting parties.	Implementing Party: Authority Monitoring/Reporting Party: Authority, in consultation with the SHPO and appropriate consulting agencies		X	X		Prior to construction	Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Conformance with SOI's Standards of Rehabilitation
	PK-MM#5: Address Noise at Roeding Park with City of Fresno To mitigate the noise impacts, a sound barrier approximately 2,800 feet in length will be constructed. It is assumed that a sound barrier will be 10 to 14 feet tall and have aesthetic treatment. A 10-foot-high sound barrier will reduce noise to 64 dBA at 250 feet inside the park and residual noise effects will occur. A 14-foot-high sound barrier will reduce noise effects to within 1 dB of no impact. Aesthetic treatment of the sound barrier will be selected with input from the community.	Implementing Party: Contractor to identify sound barriers in construction plans. Monitoring/Reporting Party: Mitigation Manager to review plans to verify compliance with this measure.	X				Design and Construction	The Authority will work with the City of Fresno as the resource owner to address noise impacts. It is possible that the City of Fresno would view the projected noise levels as acceptable and preferable to the implementation of mitigation measures.
Hist#2: Effect on Historically Significant Built-Environment Resources During Operation	Hist-MM#4: Minimize Adverse Operational Noise Effects. The BETP will identify historic properties/historical resources that will be subject to treatment to help minimize indirect adverse effects caused by operational noise of the HST Project. Properties subject to this mitigation will be identified in the BETP and will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (Authority). Preliminary project design options, such as noise walls, have been developed to help reduce noise impacts and follow FRA methodologies for noise abatement. The measures proposed to help minimize adverse effects caused by operational noise will be presented in more detail in the BETP, a plan that is being developed with critical input from all of the project's consulting parties. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. Design options implemented as part of mitigation measures, such as noise walls, have the potential to cause additional impacts, such as visual and setting alterations. Additional environmental studies will be conducted to address these potential impacts as necessary.	Implementing Party: Contractor, in consultation with the landowner, or land-owning agencies, and the CEQA lead agency Monitoring/Reporting Party: Authority	X	X	X		Preconstruction and Construction	BETP PA Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Historic American Landscape Survey (HALS) programs

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	These options will be further developed during project design and will be implemented during construction. Historic properties/historical resources subject to this mitigation measure will be thoroughly recorded in the appropriate format of the Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Historic American Landscape Survey (HALS) programs (see Hist-MM#7) prior to construction of the HST Project. The mitigation measure described above is consistent with FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment (2005) for evaluation of noise and vibration impacts associated with HSTs.							